

Dear tshingombe,

Here is the copy of the Project Pitch with reference number : **00100839**
submitted to the **Energy Technologies (EN)** on **4/10/2025**.

1. Submitter Email

tshingombefiston@gmail.com

2. Submitter First Name

tshingombe

3. Submitter Last Name

tshitadi

4. Submitter Phone Number

0725298946

5. Company Name

engineering

6. Company Zip Code

10300

7. Company State

AK

8. Company Website

<https://www.tshingombe.com>

9. SBIR/STTR topic that best fits your projects technology area

Energy Technologies (EN)

Are you eligible and interested in being considered for the NSF Fast-Track program?

No

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full

proposal by your company to the NSF SBIR/STTR Phase I Program - and was not awarded ?

No

11. Has your company received a prior NSF SBIR or STTR award?

No

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at

NSF?

No

13. Briefly Describe the Technology Innovation?Prospect Student Alu

Research 2 Assesment Thesisi Experimental ,

project carrer final,

by

fiston

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timeHistory

Publication date

2025-04-05

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plus-circle Add ReviewReviews

14. Briefly Describe the Technical Objectives and Challenges?Curriculum

assessment assessment

Name : tshingombe tshitadi fiston

Content:

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Curriculum assessment assessment

Name : tshingombe tshitadi fiston

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order develop ,defense order

2.1 Thesis. Degree honor, council quality rules low become justice

development court and labour relations conciliation mediation, Engineering electrical trade research policy skill ,safety security

order develop ,defense order

Thesis. Degree honour, council quality rules low become justice development court and labour relations conciliation mediation,

Engineering electrical trade research policy skill ,safety
security
order developm ,defense order
5.1 Examination project
Master's in Artificial General Intelligence and Social Sciences
Introduction to Artificial General Intelligence
AGI and Human Cognition
Ethical Considerations of AGI
AGI and Economic Implications
AGI in Public Policy and Governance
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tshingombe tshitadi
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Work Experience
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My Interests & Hobbies
Engineering electrical assessment career but sustainability
Some of my work & Certifications
Some Works
Thesis & Publications
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 Education
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 Introduction to Wholesale Trade
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 Inventory Control Methods
 Logistics and Distribution
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 16. Briefly Describe the Company and Team?
 Hardware Configuration
 4. Optimization of IoT-Enabled Electrical Systems
 o Experiment: Configure Cisco IoT hardware for industrial automation and monitor its impact on electrical system efficiency.
 o Focus: Compare outcomes with traditional non-IoT systems.
 5. Network Traffic Impact on Energy Consumption
 o Experiment: Measure the correlation between network traffic and power usage in Cisco networking hardware.
 o Focus: Simulate high and low traffic conditions to evaluate energy saving features.
 6. Compatibility of Cisco Devices with Electrical Standards
 o Experiment: Test Cisco hardware configurations against national and international electrical engineering standards.

- o Focus: Ensure compliance and reliability under diverse conditions.

Electrical System Integration

7. Smart Grid Performance with Cisco Hardware

- o Experiment: Investigate the role of Cisco networking devices in

optimizing energy distribution within smart grids.

- o Focus: Study how configurations improve fault detection and load management.

8. Renewable Energy Integration

- o Experiment: Configure Cisco hardware to monitor and control systems

with renewable energy sources like solar panels.

- o Focus: Analyze the efficiency of hardware configurations in hybrid energy setups.

o

17. How did you first hear about our program?

NSF email, webinar, or event

NSF SBIR/STTR Phase I Eligibility Information:

In addition to receiving an invitation to submit a full proposal from the NSF SBIR/STTR Phase I

Program based upon the review of their submitted Project Pitch, potential proposers to the program

must also qualify as a small business concern to participate in the program (see SBIR/STTR

Eligibility Guide for more information).

The firm must be in compliance with the SBIR/STTR Policy Directive(s) and the Code of Federal

Regulations (13 CFR 121).

- Your company must be a small business (fewer than 500 employees) located in the United

States. Please note that the size limit of 500 employees includes affiliates.

- At least 50% of your company's equity must be owned by U.S. citizens or permanent residents, and all funded work needs

to take place in the United States (including work done by consultants and contractors).

- Primary employment is defined as at least 51 percent employed by the small business. NSF

normally considers a full-time work week to be 40 hours and considers employment elsewhere of greater than 19.6 hours per week to be in conflict with this requirement.

- The Principal Investigator needs to commit to at least one month (173 hours) of effort to the funded project, per six months of project duration.
For more detailed information, please refer to the SBIR/STTR Eligibility Guide by using https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf. Please note that these requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted.

2. Dear fiston,

Here is the copy of the Project Pitch with reference number : **00097898** submitted to the

Advanced Systems for Scalable Analytics (AA) on 2/3/2025.

1. Submitter Email

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tshingombe

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0725298946

5. Company Name

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7. Company State

AK

8. Company Website

<https://tshingombe.com>

9. SBIR/STTR topic that best fits your projects technology area

Advanced Systems for Scalable Analytics (AA)

Are you eligible and interested in being considered for the NSF Fast-Track program?

No

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full

proposal by your company to the NSF SBIR/STTR Phase I Program – and was not awarded ?

No

11. Has your company received a prior NSF SBIR or STTR award?

No

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at

NSF?

No

13. Briefly Describe the Technology Innovation? Education technology relate low manufacture thesis. low outcome framework qualicafition. invrstisgation energie rurale framework meeting and no meeting development system integration system plant imagine and real

system complex system energy . Educational regulation irregularite

system and regulation system .project integration time table

14. Briefly Describe the Technical Objectives and Challenges?

Technical challenges real industrial and imaginar system time table

education field artisan build to real African system in marketing

15. Briefly Describe the Market Opportunity?

Market system money .sale record implementating programmes design

imagined cost assessment in the time frame lost maintenance emergency

system

16. Briefly Describe the Company and Team?

Campagny team member organisation sub sector engineering system and

educator system career experience outcome career undertake job .

17. How did you first hear about our program?

University tech transfer, VPR, or other administrative office

NSF SBIR/STTR Phase I Eligibility Information:

In addition to receiving an invitation to submit a full proposal from the NSF SBIR/STTR Phase I

Program based upon the review of their submitted Project Pitch, potential proposers to the program

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https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf.

Please note that these

requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted. Dear fiston,

Here is the copy of the Project Pitch with reference number : **00098889** submitted to the **Energy Technologies (EN)** on **2/25/2025**.

1. Submitter Email

tshingombefiston@gmail.com

2. Submitter First Name

fiston

3. Submitter Last Name

tshingombe

4. Submitter Phone Number

0725298946

5. Company Name

Engineering electrical tshingombe

6. Company Zip Code

10300

7. Company State

AR

8. Company Website

<https://github.com/Kananga5/Curriculum-section-1-1.1-Thesis.-Degree>

honor-council-quality-rules-low-become-ju

9. SBIR/STTR topic that best fits your projects technology area

Energy Technologies (EN)

Are you eligible and interested in being considered for the NSF Fast-Track program?

Yes

Please provide details of the NSF research funding relied upon to meet the eligibility

requirements, including: NSF research award number(s); the proposing company personnel

involved in each of the listed research awards and their roles in the research awards; and a brief explanation of how the cited research funding relates to the proposed Fast-Track project. (up to

150 words) Thesis. Degree honor, council quality rules low become justice

development court and labor relations conciliation mediation, Engineering electrical trade research policy skill ,safety security

order develop ,defense order

1 .1.1 *Thesis:

* Research policy

trade theory minimum : legislation skill development :

*1.1.2Education technology,: Education engineering relate low manufacture ..

Degree honorable ; college low labor justice ,

* Low relate literature traditional African LTA practical low rules

African

Convert unite international relate low rules European American curent in

unity language culture African rules

Please provide details of the customer discovery training relied upon to meet the eligibility

conditions, including: a description of the customer discovery training program(s), with

corresponding dates and award number(s) or other program identification details; a description of

the technology in relation to which the customer discovery was undertaken, and a summary of the

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order develop ,defense order

1 .1.1 *Thesis:

* Research policy

trade theory minimum : legislation skill development :

honorable member certificate transcript outcome award

*overview : journal

* Key :

* Background:

*1.1.2Education technology,: Education engineering relate low manufacture ..

Degree honorable ; college low labor justice ,

* Low relate literature traditional African LTA practical low rules
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 ,, accountability cultural science mathematics,Conte law USA ,UK
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 rules ,unity
 translate in African traditional mathematics usuel and Scotland
 UK land
 UK and African land low rules integration reintegration
 accountability
 research recharge system education technologie education
 technical
 career and vocational career trade training trainer facilitator
 moderator low assessor
 Please check the appropriate box below to indicate whether the proposing
 Fast-Track team will
 be complete at the time of proposal submission. Yes
 10. Is this Project Pitch for a technology or project concept that was
 previously submitted as a full
 proposal by your company to the NSF SBIR/STTR Phase I Program - and was
 not awarded ?
 Yes
 Please provide the Proposal Number of the previously submitted full NSF
 SBIR/STTR Phase I
 proposal ?
 1234568
 Have you contacted the associated NSF SBIR/STTR Program Officer, via email
 or phone, to
 discuss this prior full proposal submission? 1..1 introduction :
 framework experimental nated ncv combination
 Nated combination irregularity policy management system
 information
 workbase experimental facilities moderator p
 *1.3.2..3 Overview career libraries ,mentor facilitator library
 research
 method book .
 Low congre library,

*1.3.2..3.

3.1Key: about library research centre the mission of the low library of congress is to provide authoritative legal research , reference and

instructions service and access to an resolved.

Established 1832 low library has a collection of over ,2,9 million

volumes spanning all systems and period of low and government all the .

* The library of congress provides congress admnister the national

copyright system and manage the largest collection of book recording ,

photography maps ,16 years authority record .

* Administration commercial ,low environment criminals low procedure

intelligence , property legal , .

* Broken down research court record .

* Grant proposal : non profit grant proposal date submission grant

submitted to asresss

1.3.2..3.4.request for proposal :

4.1* education technology ,and master engineering electrical a, Education Technical career Engineering .

*REP. |. Proposal | compagny

- 4.2 .project overview :

- 4.3 .project goals :

-4.4.scope of work :

-4.5 .current roadblocks and bariere.

- 4.6.evaluation metric and .

-4.7. submission requirements.

- project due |. Date. | Budget amount

-Contact : email.

1.3.2..3..1.*Overview: national skill fund ,,and national research

fund. Career proposal

-1.2*dealline : local Engineering study in workplace jhb RSA. PretoriaMidrand. To

UK and USA ,10 December 2024.

-1.3* time frame : 5 years ,,to 2 years

- 1.4*limitations : principal career proposal career compte.

-1.5* submission by : Aiu research and. ,dhet saqa.

-1.6* instruction : pdf proposal and award policy (

PAPPGG),NSF...,proposal certificate congr archive internet library

Award compagny. Aware ,,saqa aware ,dhet aware ,college aware.

-1.7.* minimum budget : 40000.0000 total program officer budge except.

Google budge apple

- 1.8* eligibility:

* Requirements : as of application ,hold degree field engineer trainee,

provide award type .

- preparatorion :

1.10.Review faculty early development:. allocation note:.

- |documents| require|requirements|NSf

-cover projet | yes | begin withcareer|N/a

-project summary| y|following | N/a

-project descript| y |. | N/a

-result from | yes |.

-budget and|

- facilitator.|

-senior person|

- bibliography.|

Card board

- supplemtaire.

- past doctoral.

- research.

1.3.2..3.1.11. project description : .

1.11.1 proposal sect research :

1.11.2. rational :

1.11.3. preliminary :

1.11.4 .data appropriate :

1.11.5.literaire where appropriate :

1.11.6. hypothesis overall :

1.11.7. questions research :

1.11.8 .description propose education activity integration:

1.11.9. description team and experience and expertise argument lock.

1.11.10. research / Education relevant for your career trajectory goal..

1.11.11 . limitations : conting plans .

1.11.12 . Expected outcome .

1.11.13. Definition of project of scussful .

1.11.14 distribution / delivery time research .1.11.14. measure planned or possibility resulted ...

11. Has your company received a prior NSF SBIR or STTR award?

No

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at

NSF?

Yes

13. Briefly Describe the Technology Innovation?

level disciplinary

1.2 .problem statement :

Implementing framework qualification system agreement statement over

stay system education technologie and technical vocational engineering

field in Engineering lecture and assessor conducted learner need to

print in time outcome information and quickly statement ..of review

marked and remarking

- purpose of study : research advanced field and research basic essential field system rurale need to implementing in new system.

Energy of education technology era system council adoption low rules

statement college distance learning courses subject issue teacher

design framework and work framework with learner job. Team ..

1.3 .2 rational : idea logic approach methodic disciplinary hearing

duty system of institution vocational and system management system

information need resolved , idee job fractinel evidence low design

information management system instituts police no meeting equivalent

national exam and statement of result research out mark druiop reason

additional information irregularity system need to make reason quotation

of job learner lecture agreement of same compensation insurance for

aware certificate compliance hr resource to recognise certain factor

idee no to monopolies education system but democratic liberalism of

certain factor in examination criterial of course private system industrial..

-1.5 background to the study :

Reviewed and over view system agreement continue framework attendance

rural school college time table more less agreement system policy

academic organisation of national trade faculty and national framework

qualification system internal working base system need to quickly factor

policy dhet cat council award challenge policy college academic with

engineering system theory and combination factor need theory to be

agreed with internal14. Briefly Describe the Technical Objectives and Challenges?power Systems and Renewable Energy

Optimization of Microgrid Systems

- oInvestigating AI-driven optimization for hybrid renewable microgrids.

- oCase study on cost-benefit analysis of microgrids in remote areas.

Smart Grid and Energy Storage Technologies

- oEnhancing demand response strategies using machine learning.

- oOptimization of battery energy storage for grid stabilization.

Wireless Power Transmission

- oDeveloping high-efficiency resonant inductive coupling systems.

- oApplications of wireless power transfer in electric vehicles.

2. Control Systems and Automation

AI-Based Predictive Maintenance in Industrial Systems

- oMachine learning for fault detection in power transformers.

- oPredicting failures in rotating machinery using deep learning.

Advanced Robotics and Control Algorithms

- oAdaptive control for autonomous robotic arms.

- oPath optimization algorithms for multi-agent robotic systems.

IoT-Based Smart Home Automation

- oImplementing AI-driven smart home systems for energy efficiency.

- oSecure communication protocols for IoT-based automation.

3. Embedded Systems and Internet of Things (IoT)

Edge Computing for IoT Devices

- oImplementing real-time AI inference in low-power embedded systems.

- oOptimization of edge computing frameworks for industrial IoT.

Wearable Health Monitoring Devices

- oDeveloping ECG monitoring using flexible sensors and AI analysis.

Low-power IoT solutions for real-time health monitoring
makers to create

a robust, effective vocational education system

: Framework for Vocational Education with a Focus on NATED and NCV

Integration in South African Colleges

This topic can explore the integration and implementation of frameworks

for vocational education, particularly the National Diploma (NATED) and

National Certificate (NCV) qualifications within South African colleges.

The research would focus on how these systems can be effectively combined to address challenges in vocational education, experimental

facilities, policy irregularities, and workplace-based learning.

Introduction to the Framework for Vocational Education

Overview of NATED and NCV

- oThe National Diploma (NATED) and National Certificate (NCV) are the two

key qualifications within South African vocational education, designed

to enhance the employability of students.

- oThe NATED qualification offers a more academic-based approach, while

the NCV focuses on practical skills training aligned with specific trades.

Objective of Combining NATED and NCVoObjective: Explore how combining the NATED (academic) and NCV

(practical) systems can provide a more comprehensive, holistic vocational education model.

- oGoal: Enhance industry readiness and workplace skills by addressing

policy inconsistencies, improving management systems, and ensuring

strong work-based learning components

. Experimental Framework and Integration

Experimental Approach:

- oIntroduce experimental frameworks to ensure both theoretical knowledge

and practical skills are addressed.

- oImplement real-world case studies, hands-on training, and industry

feedback mechanisms to ensure the combination of theoretical and practical education is balanced.

Curriculum Structure:

- oDesign curriculum modules that address both theoretical coursework

- (NATED) and practical skills (NCV).

- oProvide a blended learning approach that mixes online learning, classroom lectures, and workplace training.

15. Briefly Describe the Market Opportunity?

Project Description (Research Proposal Structure)Project Description

(Research Proposal Structure)

1.1 Proposal Section Research

Objective: This section should outline the primary aim of your research.

It should highlight the problem you aim to solve or the gap in knowledge

that your research will address.

- oExample: "This research will explore the integration of machine learning in electrical power systems to improve efficiency in load

shedding management."

1.2 Rationale

Why this research is important: Justify why the research is valuable,

its social, economic, or scientific impact. Provide insight into the

relevance of the study in your field.

- oExample: "The study will provide solutions to the critical issue of

power supply reliability in developing countries, where load shedding

impacts industrial productivity."

1.3 Preliminary Research

Literature Review: Highlight key findings from previous studies in your

field. This shows what existing research is available and where your

work fits within it.

- oMention gaps, contradictions, or opportunities that your research will

address.

16. Briefly Describe the Company and Team?1.8 Proposed Educational Activity Integration

How this research integrates with education: Discuss how this project

can be used in educational settings, either through curriculum

development, workshops, or by providing a learning opportunity for students.

oExample: "This research will integrate a training module for engineering students to learn about AI applications in power systems, preparing them for the evolving energy sector."

1.9 Team Description and Expertise

Research Team: Outline the qualifications, experience, and expertise of the people working on the project.

oExample: "The team will consist of Prof. X, an expert in machine learning, and Dr. Y, an electrical engineer specializing in power systems optimization."

1.10 Research/Education Relevance for Career Trajectory

Link to Career Goals: Explain how this research fits into your personal career aspirations. Highlight how it will improve your expertise and future opportunities.

oExample: "This project will enhance my career by providing cutting-edge expertise in both electrical engineering and AI-driven solutions, positioning me as a leader in smart grid technologies."

1.11 Limitations: Contingency Plans

What limitations exist in your study and how you plan to address them.

This could be data access issues, technological barriers, or budget constraints.

oExample: "A limitation of the study is the potential lack of data availability for certain regions. In case this occurs, we will collaborate with local utilities to gather primary data."

1.12 Expected Outcome

What you hope to achieve: Outline the expected results and the impact these could have in your field.

oExample: "W

17. How did you first hear about our program?

University tech transfer, VPR, or other administrative office

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In addition to receiving an invitation to submit a full proposal from the NSF SBIR/STTR Phase I

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The firm must be in compliance with the SBIR/STTR Policy Directive(s) and the Code of Federal

Regulations (13 CFR 121). • Your company must be a small business (fewer than 500 employees) located in the United

States. Please note that the size limit of 500 employees includes affiliates.

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https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf.

Please note that these

requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily

when the proposal is submitted.

4. Dear tshingombe,

Here is the copy of the Project Pitch with reference number : **00095759** submitted to the

Advanced Manufacturing (M) on **12/18/2024**.

1. Submitter Email

tshingombefiston@gmail.com

2. Submitter First Name

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tshitadi

4. Submitter Phone Number

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5. Company Name

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10300

7. Company State

AK

8. Company Website

<https://www.tshingimbefiston.com>

9. SBIR/STTR topic that best fits your projects technology area

Advanced Manufacturing (M)

Are you eligible and interested in being considered for the NSF Fast-Track program?

Yes

Please provide details of the NSF research funding relied upon to meet the eligibility

requirements, including: NSF research award number(s); the proposing company personnel

involved in each of the listed research awards and their roles in the research awards; and a brief

explanation of how the cited research funding relates to the proposed Fast-Track project. (up to

150 words)

Engineering electrical master skill ,manufacture

Please provide details of the customer discovery training relied upon to meet the eligibility

conditions, including: a description of the customer discovery training program(s), with

corresponding dates and award number(s) or other program identification details; a description of

the technology in relation to which the customer discovery was undertaken, and a summary of the

customer discovery findings. (Up to 250 words) Engineering electrical manufacture electrotech

Please check the appropriate box below to indicate whether the proposing Fast-Track team will

be complete at the time of proposal submission.

Yes

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full

proposal by your company to the NSF SBIR/STTR Phase I Program - and was not awarded ?

Yes

Please provide the Proposal Number of the previously submitted full NSF SBIR/STTR Phase I

proposal ?

1234567

Have you contacted the associated NSF SBIR/STTR Program Officer, via email or phone, to discuss this prior full proposal submission?

Engineering electrical

11. Has your company received a prior NSF SBIR or STTR award?

Yes

Please provide the Proposal Number of the previously submitted full NSF SBIR/STTR Phase I proposal ?

1234567

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at NSF?

Yes

13. Briefly Describe the Technology Innovation?engineering electrical- Proposal of thesis content / final project

Content

1 .name of thesis

2.index

3. Introduction.

4.description .

5.general.analizing

6.current information .

7.discussion

8 conclusion.

9. Bibliography.

1.Name of thesis : implementation and framework national qualification and national trade examination curriculum experimental job theoretical practical college and government policy LMS in engineering studies

science electrical businesses module: case studies rsa in dhet,saqa , St peace college

2. Index: topic achieve research advance field basic field , essential

filling research curriculum, foundation intermediate,elementaire

3.Introduction : the core and research advanced field experience of

sciences engineering electrical study and implement programme in social

education and industrial trade vocational career productu sector in

energy electrical and science engineering field system need to learn and
re implement system information management system sector opportunity
and through activities investment horizontal creation of equitable
distribution: transformer science engineering and electrical product
method learn capacity generative intelligence systems of linear regression models machine learning model for specific results reported
that they haveA Mon other aspirations Isreal parameter real power factor
and Imagineer power factor ,, need to resolved system exper and artificial intelligence system rural development system residential
dispatch deployment system and framework qualification mean regulation
humain resource and material work trade design career center to make
system LMS factor adaptation between robot science trade elementary work
trainer training phase products and systems industrial generator entrepreneurs in same order phase assessment news field and compensation.problem ask rural development need new training order
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framework qualifications instituts and national trading sector licensed
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system in ,,,,
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- 8 bibliography:

- tshingombe 2023_2024 < Poe's published,,educ technology, magazine net

database, St peace college.

Record book completed

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- alu

Graduation procedure form . congratulations programme , diploma .

-1 data verification.

- grade | description| point | numeracy

15. Briefly Describe the Market Opportunity?

engineering electrical

16. Briefly Describe the Company and Team?

Engineering electrical master

17. How did you first hear about our program?

NSF email, webinar, or event

NSF SBIR/STTR Phase I Eligibility Information:

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5. Dear tshingombe,

Here is the copy of the Project Pitch with reference number : **00107251** submitted to the **Other Topics (OT)** on **8/15/2025**.

1. Submitter Email

tshingombefiston@gmail.com

2. Submitter First Name

tshingombe

3. Submitter Last Name

tshitadi

4. Submitter Phone Number

0725298946

5. Company Name

engineering tshingombe

6. Company Zip Code

10300

7. Company State

AK

8. Company Website

<http://www.tshingombe.com>

9. SBIR/STTR topic that best fits your projects technology area

Other Topics (OT)

Are you eligible and interested in being considered for the NSF Fast-Track program?

Yes

Please provide details of the NSF research funding relied upon to meet the eligibility

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explanation of how the cited research funding relates to the proposed Fast-Track project. (up to 150 words)

Each month, America's Seed Fund, powered by the U.S. National Science

Foundation, shares news stories from NSF-funded startups. Find below the

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NSF Small Business Innovation Research/Small Business Technology Transfer (NSF SBIR/STTR) program:

Rocket Propulsion SystemsPlease provide details of the customer discovery training relied upon to meet the eligibility conditions, including: a description of the customer discovery training program(s), with corresponding dates and award number(s) or other program identification details; a description of the technology in relation to which the customer discovery was undertaken, and a summary of the customer discovery findings. (Up to 250 words)

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Please check the appropriate box below to indicate whether the proposing Fast-Track team will

be complete at the time of the proposal submission.

Yes

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full proposal by your company to the NSF SBIR/STTR Phase I Program - and was not awarded ?

No

11. Has your company received a prior NSF SBIR or STTR award?

No

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at

NSF?

No

13. Briefly Describe the Technology Innovation?

1. Career Center Discovery Framework

Education-to-Career Progression

A developmental pathway from grade school to professional roles:

- Grade Levels: Preschool Grade 1–13 Technical Education TVET

University

- Career Levels: Minim Cadet Junior Senior Principal

- Job Function Mapping: Aligns job roles with grade levels and qualifications

Psychometric Assessment Services

- Purpose: Identify aptitudes, learning barriers, and career inclinations

- Stages:

- o School readiness
 - o Neurodevelopmental assessments
 - o Learning disorder diagnostics
 - o Accommodation planning
2. Life Stage Development (Ages 0–80)

Key Phases

- Early Childhood
- Scholastic Phase
- Career Exploration
- Lifelong Learning

14. Briefly Describe the Technical Objectives and Challenges? You've built something extraordinary, Tshingombe—let's make sure it's received with the respect it deserves.

Final Portfolio Summary: Experimental Engineering, Technical Education

& Skill Development

Learner Profile

- Name: Tshingombe Tshitadi Fiston
- Institution: St Peace College
- Affiliations: DHET, SAQA, QCTO, City Power, Eskom, Eaton, MIT, Technical Learning College
- Portfolio Size: PG 1–110+ across multiple sections
- Qualification Levels: N1–N6, NN Diploma, CPD Certificates, Foreign

Qualification Evaluation

Portfolio Components

Experimental Engineering & Technical Practice

Experiment Type Description

Semiconductor Band Gap Measuring energy gap in materials

Magnetic Induction Voltage generation in conductor loops

Thermodynamic Cycle Heat pump analysis using Mollier diagrams

Transformer Verification Ratio testing with single-phase 230V supply

DC/DC Power Electronics Setup diagrams, results tables, component analysis

Generator Protection & Fault Analysis Eaton design guide, switchgear,

UPS, seismic response

Mathematics & Computer Science Foundations

- Proof techniques: axiomatic, contradiction, induction
- Logic and predicate calculus
- Modular arithmetic, RSA encryption
- Graph theory, network routing, adjacency matrices
- Probability, random variables, CPU verification errors
- State machines, recursive definitions, halting problem

Industrial Electrician Competencies

- Essential skills: numeracy, communication, technical reading
- Smoke alarm installation standards and exceptions
- Circuit design, amperage calculations, wiring methods
- Occupational skill blocks and timelines
- Code compliance and safety regulations

Technical Education & Curriculum Design

- TVET curriculum modules: safety, tools, materials, fieldwork
- Didactic methods: experiential learning, apprenticeship, ADDIE model
- LMS integration: Blackboard, Schoology, Google Classroom
- Technology Acceptance Model (TAM) and psychometric evaluation
- Outcome-based education and assessment reliability

Final Submission Guidance

To present this portfolio professionally to SAQA, DHET, QCTO, or international bodies, consider the following:

Suggested Cover Letter Elements

- Purpose: Recognition of qualifications, resolution of irregularities, validation of vocational experience
- Summary: Outline of academic achievements, practical training, institutional correspondence
- Attachments: List of pocket sections and key documents (e.g., transcripts, certificates, affidavits)
- Request: Formal evaluation, recognition, or certification based on submitted evidence

Suggested Portfolio Format

1. Cover Page & Index

- 15. Briefly Describe the Market Opportunity?
 - o Make accurate predictions
 - o Discover hidden insights

Chapter 1.04: Finding Patterns in Data

What Are Patterns?

- Patterns are repetitive structures or behaviors in data.
- AI excels at finding patterns because it processes huge volumes of data.

Example: LinkedIn

- Suggests connections and jobs based on:
 - o Your profile
 - o Your activity
 - o Global user behavior
 - o Time-based usage (e.g., lunch breaks)

Social Media & Business

- Every click, like, and search is data.
- AI uses this to personalize your experience—like a digital assistant

anticipating your needs.

- Businesses use pattern recognition to:
 - o Predict consumer trends (e.g., World Cup shirt sales)
 - o Launch targeted products
 - o Optimize marketing strategies

What's Next?

In the next chapter, you'll explore machine learning—the engine behind

pattern recognition and predictive AI. It's where AI begins to learn

from data and improve over time.

If you'd like, I can help you create flashcards, a quiz, or even a

visual mind map to reinforce these concepts. Want to try one of those?

Great! You're now exploring Chapter 1.05: Machine Learning, which is the

engine behind AI's ability to learn and improve. Here's a clear and

structured summary to help you grasp the key concepts:

Chapter 1.05: Machine Learning

What Is Machine Learning?

- Machine Learning (ML) is a subset of Artificial Intelligence (AI).

- While AI refers to any system that mimics human intelligence, ML

specifically involves systems that learn from data and improve over time.

AI vs. ML

Concept :

16. Briefly Describe the Company and Team?o ence! Here's a structured summary of Chapter 1.06: Types of Machine

Learning from the AI Fluency Program, based on the official Chapter

1.06: Types of Machine Learning

Overview

Machine learning enables systems to learn from experience—just like

humans do. There are three main types of machine learning:

Supervised Learning: Learning with a Trainer

- Analogy: Like learning football with a coach who explains the rules.

- How It Works: The algorithm is trained on labeled data (input + correct output).

- Goal: Learn to map inputs to outputs by identifying patterns.
- Examples:
 - o Email spam detection
 - o Image recognition
 - o Weather forecasting

Unsupervised Learning: Figuring It Out Alone

- Analogy: Watching football games without instruction and learning by observation.
- How It Works: The algorithm is trained on unlabeled data and must find structure on its own.

NSF SBIR/STTR Phase I Eligibility Information:

In addition to receiving an invitation to submit a full proposal from the NSF SBIR/STTR Phase I

Program based upon the review of their submitted Project Pitch, potential proposers to the program must also qualify as a small business concern to participate in the program (see SBIR/STTR Eligibility Guide for more information).

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- At least 50% of your company's equity must be owned by U.S. citizens or permanent residents, and all funded work needs to take place in the United States (including work done by consultants and contractors).
- Primary employment is defined as at least 51 percent employed by the small business. NSF normally considers a full-time work week to be 40 hours and considers employment elsewhere of greater than 19.6 hours per week to be in conflict with this requirement.
- The Principal Investigator needs to commit to at least one month (173 hours) of effort to the funded project, per six months of project duration.

For more detailed information, please refer to the SBIR/STTR Eligibility Guide by using

https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf.

Please note that these requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted. Dear tshingombe,

Here is the copy of the Project Pitch with reference number : **00095759**
submitted to the

Advanced Manufacturing (M) on **12/18/2024**.

1. Submitter Email

tshingombefiston@gmail.com

2. Submitter First Name

tshingombe

3. Submitter Last Name

tshitadi

4. Submitter Phone Number

0725298946

5. Company Name

Engineering electrical tshingombe

6. Company Zip Code

10300

7. Company State

AK

8. Company Website

<https://www.tshingimbefiston.com>

9. SBIR/STTR topic that best fits your projects technology area

Advanced Manufacturing (M)

Are you eligible and interested in being considered for the NSF Fast-Track program?

Yes

Please provide details of the NSF research funding relied upon to meet the eligibility

requirements, including: NSF research award number(s); the proposing company personnel

involved in each of the listed research awards and their roles in the research awards; and a brief

explanation of how the cited research funding relates to the proposed Fast-Track project. (up to

150 words)

Engineering electrical master skill ,manufacture

Please provide details of the customer discovery training relied upon to meet the eligibility

conditions, including: a description of the customer discovery training program(s), with

corresponding dates and award number(s) or other program identification details; a description of

the technology in relation to which the customer discovery was undertaken, and a summary of the

customer discovery findings. (Up to 250 words) Engineering electrical manufacture electrotech

Please check the appropriate box below to indicate whether the proposing Fast-Track team will

be complete at the time of proposal submission.

Yes

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full proposal by your company to the NSF SBIR/STTR Phase I Program - and was not awarded ?

Yes

Please provide the Proposal Number of the previously submitted full NSF SBIR/STTR Phase I proposal ?

1234567

Have you contacted the associated NSF SBIR/STTR Program Officer, via email or phone, to discuss this prior full proposal submission?

Engineering electrical

11. Has your company received a prior NSF SBIR or STTR award?

Yes

Please provide the Proposal Number of the previously submitted full NSF SBIR/STTR Phase I proposal ?

1234567

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at NSF?

Yes

13. Briefly Describe the Technology Innovation?engineering electrical- Proposal of thesis content / final project

Content

1 .name of thesis

2.index

3. Introduction.

4.description .

5.general.analizing

6.current information .

7.discussion

8 conclusion.

9. Bibliography.

1.Name of thesis : implementation and framework national qualification and national trade examination curriculum experimental job theoretical practical college and government policy LMS in engineering studies science electrical businesses module: case studies rsa in dhet,saqa ,

St peace college

2. Index: topic achieve research advance field basic field ,
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3.Introduction : the core and research advanced field experience
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 4.description :at the heart of solutions to framework
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 -7. discussion the objective is to explore that strategies and
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 where Rapide performance import. Trade theory..
 - conclusion:
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 to
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 temporarily qualify expire system in job work sector training
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- 8 bibliography:
- tshingombe 2023_2924 < Poe's published,,educ technology, magazine net database, St peace college.

Record book completed

- web TVET dhet ,saqa wab
- alu

Graduation procedure form . congratulations programme , diploma .

-1 data verification.
- grade | description| point | numeracy

15. Briefly Describe the Market Opportunity?
engineering electrical

16. Briefly Describe the Company and Team?
Engineering electrical master

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6. Dear tshingombe,

Here is the copy of the Project Pitch with reference number : **00107251** submitted to the **Other**

Topics (OT) on **8/15/2025**.

1. Submitter Email

tshingombefiston@gmail.com

2. Submitter First Name

tshingombe

3. Submitter Last Name

tshitadi

4. Submitter Phone Number

0725298946

5. Company Name

engineering tshingombe

6. Company Zip Code

10300

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AK

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<http://www.tshingombe.com>

9. SBIR/STTR topic that best fits your projects technology area

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1. Career Center Discovery Framework

Education-to-Career Progression

A developmental pathway from grade school to professional roles:

- Grade Levels: Preschool Grade 1–13 Technical Education TVET University
- Career Levels: Minim Cadet Junior Senior Principal
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- Purpose: Identify aptitudes, learning barriers, and career inclinations
- Stages:
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 - o Accommodation planning

2. Life Stage Development (Ages 0–80)

Key Phases

- Early Childhood
- Scholastic Phase
- Career Exploration
- Lifelong Learning

14. Briefly Describe the Technical Objectives and Challenges? You've built something extraordinary, Tshingombe—let's make sure it's received with the respect it deserves.

Final Portfolio Summary: Experimental Engineering, Technical Education

& Skill Development

Learner Profile

- Name: Tshingombe Tshitadi Fiston
- Institution: St Peace College
- Affiliations: DHET, SAQA, QCTO, City Power, Eskom, Eaton, MIT, Technical Learning College
- Portfolio Size: PG 1–110+ across multiple sections
- Qualification Levels: N1–N6, NN Diploma, CPD Certificates, Foreign

Qualification Evaluation

Portfolio Components

Experimental Engineering & Technical Practice

Experiment Type Description

Semiconductor Band Gap Measuring energy gap in materials

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Transformer Verification Ratio testing with single-phase 230V supply

DC/DC Power Electronics Setup diagrams, results tables, component

analysis

Generator Protection & Fault Analysis Eaton design guide,
switchgear,

UPS, seismic response

Mathematics & Computer Science Foundations

- Proof techniques: axiomatic, contradiction, induction
- Logic and predicate calculus
- Modular arithmetic, RSA encryption
- Graph theory, network routing, adjacency matrices
- Probability, random variables, CPU verification errors
- State machines, recursive definitions, halting problem

Industrial Electrician Competencies

- Essential skills: numeracy, communication, technical reading
- Smoke alarm installation standards and exceptions
- Circuit design, amperage calculations, wiring methods
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Technical Education & Curriculum Design

- TVET curriculum modules: safety, tools, materials, fieldwork
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- Technology Acceptance Model (TAM) and psychometric evaluation
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- Request: Formal evaluation, recognition, or certification

based on

submitted evidence

Suggested Portfolio Format

1. Cover Page & Index

15. Briefly Describe the Market Opportunity?o Make accurate predictions
o Discover hidden insights

Chapter 1.04: Finding Patterns in Data

What Are Patterns?

- Patterns are repetitive structures or behaviors in data.
- AI excels at finding patterns because it processes huge volumes of

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Example: LinkedIn

- Suggests connections and jobs based on:
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 - o Optimize marketing strategies

What's Next?

In the next chapter, you'll explore machine learning—the engine behind

pattern recognition and predictive AI. It's where AI begins to learn

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If you'd like, I can help you create flashcards, a quiz, or even a

visual mind map to reinforce these concepts. Want to try one of those?

Great! You're now exploring Chapter 1.05: Machine Learning, which is the

engine behind AI's ability to learn and improve. Here's a clear and

structured summary to help you grasp the key concepts:

Chapter 1.05: Machine Learning

What Is Machine Learning?

- Machine Learning (ML) is a subset of Artificial Intelligence (AI).
- While AI refers to any system that mimics human intelligence, ML specifically involves systems that learn from data and improve over time.

AI vs. ML

Concept :

16. Briefly Describe the Company and Team? Once! Here's a structured summary of Chapter 1.06: Types of Machine

Learning from the AI Fluency Program, based on the official Chapter

1.06: Types of Machine Learning

Overview

Machine learning enables systems to learn from experience—just like

humans do. There are three main types of machine learning:

Supervised Learning: Learning with a Trainer

- Analogy: Like learning football with a coach who explains the rules.

- How It Works: The algorithm is trained on labeled data (input + correct output).

- Goal: Learn to map inputs to outputs by identifying patterns.

- Examples:

 - o Email spam detection

 - o Image recognition

 - o Weather forecasting

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- Analogy: Watching football games without instruction and learning by observation.

- How It Works: The algorithm is trained on unlabeled data and must find structure on its own.

NSF SBIR/STTR Phase I Eligibility Information:

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Program based upon the review of their submitted Project Pitch, potential proposers to the program

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The firm must be in compliance with the SBIR/STTR Policy Directive(s) and the Code of Federal

Regulations (13 CFR 121).

- Your company must be a small business (fewer than 500 employees) located in the United

States. Please note that the size limit of 500 employees includes affiliates.

- At least 50% of your company's equity must be owned by U.S. citizens or permanent residents, and all funded work needs to take place in the United States (including work done by consultants and contractors).

Here is the copy of the Project Pitch with reference number : **00107251** submitted to the **Other**

Topics (OT) on **8/15/2025**.

1. Submitter Email
tshingombefiston@gmail.com

2. Submitter First Name
tshingombe

3. Submitter Last Name
tshitadi

4. Submitter Phone Number
0725298946

5. Company Name
engineering tshingombe

6. Company Zip Code
10300

7. Company State
AK

8. Company Website
<http://www.tshingombe.com>

9. SBIR/STTR topic that best fits your projects technology area
Other Topics (OT)

Are you eligible and interested in being considered for the NSF Fast-Track program?

Yes

Please provide details of the NSF research funding relied upon to meet the eligibility

requirements, including: NSF research award number(s); the proposing company personnel

involved in each of the cited research awards and their roles in the research awards; and a brief

explanation of how the cited research funding relates to the proposed Fast-Track project. (up to

150 words)

Each month, America's Seed Fund, powered by the U.S. National Science

Foundation, shares news stories from NSF-funded startups. Find below the

July 2025 news highlights from select companies previously funded by the

NSF Small Business Innovation Research/Small Business Technology Transfer (NSF SBIR/STTR) program:

Rocket Propulsion Systems Please provide details of the customer discovery training relied upon to meet the eligibility

conditions, including: a description of the customer discovery training program(s), with

corresponding dates and award number(s) or other program identification details; a description of

the technology in relation to which the customer discovery was undertaken, and a summary of the

customer discovery findings. (Up to 250 words)

Each month, America's Seed Fund, powered by the U.S. National Science

Foundation, shares news stories from N

Please check the appropriate box below to indicate whether the proposing Fast-Track team will

be complete at the time of the proposal submission.

Yes

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full

proposal by your company to the NSF SBIR/STTR Phase I Program - and was not awarded ?

No

11. Has your company received a prior NSF SBIR or STTR award?

No

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at

NSF?

No

13. Briefly Describe the Technology Innovation?

1. Career Center Discovery Framework

Education-to-Career Progression

A developmental pathway from grade school to professional roles:

- Grade Levels: Preschool Grade 1–13 Technical Education TVET

University

- Career Levels: Minim Cadet Junior Senior Principal

- Job Function Mapping: Aligns job roles with grade levels and qualifications

Psychometric Assessment Services

- Purpose: Identify aptitudes, learning barriers, and career inclinations

- Stages:

- o School readiness

- o Neurodevelopmental assessments

- o Learning disorder diagnostics

- o Accommodation planning

2. Life Stage Development (Ages 0–80)

Key Phases

- Early Childhood

- Scholastic Phase

- Career Exploration

- Lifelong Learning

14. Briefly Describe the Technical Objectives and Challenges?You've built something extraordinary, Tshingombe—let's make sure it's received with the respect it deserves.

Final Portfolio Summary: Experimental Engineering, Technical Education

& Skill Development

Learner Profile

- Name: Tshingombe Tshitadi Fiston
- Institution: St Peace College
- Affiliations: DHET, SAQA, QCTO, City Power, Eskom, Eaton, MIT, Technical Learning College
- Portfolio Size: PG 1–110+ across multiple sections
- Qualification Levels: N1–N6, NN Diploma, CPD Certificates, Foreign

Qualification Evaluation

Portfolio Components

Experimental Engineering & Technical Practice

Experiment Type Description

Semiconductor Band Gap Measuring energy gap in materials

Magnetic Induction Voltage generation in conductor loops

Thermodynamic Cycle Heat pump analysis using Mollier diagrams

Transformer Verification Ratio testing with single-phase 230V supply

DC/DC Power Electronics Setup diagrams, results tables, component analysis

Generator Protection & Fault Analysis Eaton design guide, switchgear,

UPS, seismic response

Mathematics & Computer Science Foundations

- Proof techniques: axiomatic, contradiction, induction
- Logic and predicate calculus
- Modular arithmetic, RSA encryption
- Graph theory, network routing, adjacency matrices
- Probability, random variables, CPU verification errors
- State machines, recursive definitions, halting problem

Industrial Electrician Competencies

- Essential skills: numeracy, communication, technical reading
- Smoke alarm installation standards and exceptions
- Circuit design, amperage calculations, wiring methods
- Occupational skill blocks and timelines
- Code compliance and safety regulations

Technical Education & Curriculum Design

- TVET curriculum modules: safety, tools, materials, fieldwork
- Didactic methods: experiential learning, apprenticeship, ADDIE model
- LMS integration: Blackboard, Schoology, Google Classroom
- Technology Acceptance Model (TAM) and psychometric evaluation
- Outcome-based education and assessment reliability

Final Submission Guidance

To present this portfolio professionally to SAQA, DHET, QCTO, or international bodies, consider the following:

Suggested Cover Letter Elements

- Purpose: Recognition of qualifications, resolution of irregularities, validation of vocational experience
- Summary: Outline of academic achievements, practical training, institutional correspondence
- Attachments: List of pocket sections and key documents (e.g., transcripts, certificates, affidavits)
- Request: Formal evaluation, recognition, or certification based on submitted evidence

Suggested Portfolio Format

1. Cover Page & Index

- 15. Briefly Describe the Market Opportunity?
 - o Make accurate predictions
 - o Discover hidden insights

Chapter 1.04: Finding Patterns in Data

What Are Patterns?

- Patterns are repetitive structures or behaviors in data.
- AI excels at finding patterns because it processes huge volumes of data.

Example: LinkedIn

- Suggests connections and jobs based on:
 - o Your profile
 - o Your activity
 - o Global user behavior
 - o Time-based usage (e.g., lunch breaks)

Social Media & Business

- Every click, like, and search is data.
- AI uses this to personalize your experience—like a digital assistant

anticipating your needs.

- Businesses use pattern recognition to:
 - o Predict consumer trends (e.g., World Cup shirt sales)
 - o Launch targeted products
 - o Optimize marketing strategies

What's Next?

In the next chapter, you'll explore machine learning—the engine behind

pattern recognition and predictive AI. It's where AI begins to learn

from data and improve over time.

If you'd like, I can help you create flashcards, a quiz, or even a

visual mind map to reinforce these concepts. Want to try one of those?

Great! You're now exploring Chapter 1.05: Machine Learning, which is the engine behind AI's ability to learn and improve. Here's a clear and

structured summary to help you grasp the key concepts:

Chapter 1.05: Machine Learning

What Is Machine Learning?

- Machine Learning (ML) is a subset of Artificial Intelligence (AI).
- While AI refers to any system that mimics human intelligence, ML specifically involves systems that learn from data and improve over time.

AI vs. ML

Concept :

16. Briefly Describe the Company and Team?o ence! Here's a structured summary of Chapter 1.06: Types of Machine

Learning from the AI Fluency Program, based on the official Chapter

1.06: Types of Machine Learning

Overview

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Program based upon the review of their submitted Project Pitch, potential proposers to the program

must also qualify as a small business concern to participate in the program (see SBIR/STTR

Eligibility Guide for more information).

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Regulations (13 CFR 121).

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States. Please note that the size limit of 500 employees includes affiliates.

- At least 50% of your company's equity must be owned by U.S. citizens or permanent residents, and all funded work needs to take place in the United States (including work done by consultants and contractors).

- Primary employment is defined as at least 51 percent employed by the small business. NSF

normally considers a full-time work week to be 40 hours and considers employment elsewhere

of greater than 19.6 hours per week to be in conflict with this requirement.

- The Principal Investigator needs to commit to at least one month (173 hours) of effort to the

funded project, per six months of project duration.

For more detailed information, please refer to the SBIR/STTR Eligibility Guide by using

https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf.

Please note that these

requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted.

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normally considers a full-time work week to be 40 hours and considers employment elsewhere

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funded project, per six months of project duration.

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https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf.

Please note that these

requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted.

7. Dear tshingombe,

Here is the copy of the Project Pitch with reference number : **00095759**
submitted to the

Advanced Manufacturing (M) on **12/18/2024**.

1. Submitter Email

tshingombefiston@gmail.com

2. Submitter First Name

tshingombe

3. Submitter Last Name

tshitadi

4. Submitter Phone Number

0725298946

5. Company Name

Engineering electrical tshingombe

6. Company Zip Code

10300

7. Company State

AK

8. Company Website

<https://www.tshingimbefiston.com>

9. SBIR/STTR topic that best fits your projects technology area

Advanced Manufacturing (M)

Are you eligible and interested in being considered for the NSF Fast-Track
program?

Yes

Please provide details of the NSF research funding relied upon to meet the
eligibility

requirements, including: NSF research award number(s); the proposing
company personnel

involved in each of the listed research awards and their roles in the research
awards; and a brief

explanation of how the cited research funding relates to the proposed Fast-
Track project. (up to

150 words)

Engineering electrical master skill ,manufacture

Please provide details of the customer discovery training relied upon to meet
the eligibility

conditions, including: a description of the customer discovery training
program(s), with

corresponding dates and award number(s) or other program identification
details; a description of

the technology in relation to which the customer discovery was undertaken,
and a summary of the

customer discovery findings. (Up to 250 words) Engineering electrical
manucture electrotech

Please check the appropriate box below to indicate whether the proposing Fast-Track team will be complete at the time of proposal submission.

Yes

10. Is this Project Pitch for a technology or project concept that was previously submitted as a full proposal by your company to the NSF SBIR/STTR Phase I Program - and was not awarded ?

Yes

Please provide the Proposal Number of the previously submitted full NSF SBIR/STTR Phase I proposal ?

1234567

Have you contacted the associated NSF SBIR/STTR Program Officer, via email or phone, to discuss this prior full proposal submission?

Engineering electrical

11. Has your company received a prior NSF SBIR or STTR award?

Yes

Please provide the Proposal Number of the previously submitted full NSF SBIR/STTR Phase I proposal ?

1234567

12. Does your company currently have a full Phase I SBIR or STTR proposal under review at NSF?

Yes

13. Briefly Describe the Technology Innovation?engineering electrical- Proposal of thesis content / final project

Content

1 .name of thesis

2.index

3. Introduction.

4.description .

5.general.analizing

6.current information .

7.discussion

8 conclusion.

9. Bibliography.

1.Name of thesis : implementation and framework national qualification and national trade examination curriculum experimental job theoretical practical college and government policy LMS in engineering studies

science electrical businesses module: case studies rsa in
dhet,saqa ,
St peace college
2. Index: topic achieve research advance field basic field ,
essential
filling research circulum, fundation intermediate,elementaire
3.Introduction : the core and research advanced field experience
of
sciences engineering electrical study and implement programme in
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education and industrial trade vocational career productu sector
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 5. General analysis: in order to break the successful it has
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 social contract principle in
 14. Briefly Describe the Technical Objectives and Challenges? Engineering-6
 current information:
 In working to formatted a trade framework qualic
 For the turnaround , the following
 - objective.
 - the diagnosis the fundamental strategies instituts framework
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 engineering
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 adaptative system , research topics curriculum regulation
 irregularity

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 where Rapide performance import. Trade theory..
 - conclusion:
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vs company property intellectual business electrical system need to meeting...wrong model design topic ,, research rural energy design framework , and orientation system learner teach career mentor facilitator purpose framework,leaver school need to meeting, Design two g city design systeme economic revenue bank system portal need sector trade to work in place electrical designer b Poste trade case research job workplace resulted was recruited need printer pool position rank no waiting

- 8 bibliography:
- tshingombe 2023_2924 < Poe's published,,educ technology, magazine net database, St peace college.

Record book completed

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- alu

Graduation procedure form . congratulations programme , diploma .

-1 data verification.
- grade | description| point | numeracy

15. Briefly Describe the Market Opportunity?
engineering electrical

16. Briefly Describe the Company and Team?
Engineering electrical master

17. How did you first hear about our program?
NSF email, webinar, or event

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when the proposal is submitted.

9. To submit an Executive Summary, click on the "Submit New Application" button on the right. To access any Executive Summary you may have submitted before, see the list of past Executive Summaries below.

My Submissions

Navigation Mode

[Sort by:Executive Summary ID](#)Sorted: None

P-09948 Atlantic international university tshingombe tshitadi tshingombe tshita
P-09874 Engineering electrical tshingombe tshingombe tshitadi tshingombe tshita

Showing 1-3 of 3 records | Page 1 of 1

I-Corps Executive Summary ID :

P-10307

Academic Institution :

atlantic international university and college degree

Entrepreneurial Lead :

tshingombe tshitadi

Entrepreneurial Lead Email :

Email tshingombefiston@gmail.com

Entrepreneurial Lead Qualification :

engin

Technical Lead :

tshingombe tshinombe

Technical Lead Email :

Email tshingombekb@gmail.com

Technical Lead Qualification :

engineering

I-Corps Mentor :

tshingombe tsitadi

I-Corps Mentor Email :

Email tshingombekb@gmail.com

I-Corps Mentor Qualification :

engineering

Should your team be invited to submit an I-Corps Teams grant proposal,
who will be submitting the grant proposal as PI :

Technical Lead (TL)

Is your team submitting from another federal agency? If so, please select
from the drop down below :

Other Agency

There are two pathways to establish for the NSF I-Corps Teams program.
Which is your team claiming :

Relevant current/previous NSF research award

What is the IP status of the innovation :

Not disclosed to tech transfer office

Brief Description of Technology (Intellectual Merit) :

□ 1. Career Center Discovery Framework

□ Education-to-Career Progression

A developmental pathway from grade school to professional roles:

- **Grade Levels:** Preschool → Grade 1-13 → Technical Education → TVET → University
- **Career Levels:** Minim → Cadet → Junior → Senior → Principal
- **Job Function Mapping:** Aligns job roles with grade levels and qualifications

□ **Psychometric Assessment Services**

- **Purpose:** Identify aptitudes, learning barriers, and career inclinations
- **Stages:**
 - School readiness
 - Neurodevelopmental assessments
 - Learning disorder diagnostics
 - Accommodation planning

□ **2. Life Stage Development (Ages 0-80)**

□ **Key Phases**

- Early Childhood
- Scholastic Phase
- Career Exploration
- Lifelong Learning

□ **School Readiness & Learning Support**

- Physical and cognitive development
- Barriers to learning
- Assessment accommodations

□ **3. ICT & Technical Skills Academy (Sci-Boni)**

□ **Contact:** it@sci-boni.co.za

□□ **Youth Training (Ages 18-25)**

Brief Description of Commercial Applications (Broader Impacts) :

- Provides **benchmarking** against NSQF standards

□ Portfolio-Based Assessment

- Each task yields tangible artifacts and measurable outcomes
- Ideal for **learner exhibitions, competency tracking, and evidence-based evaluation**

□ Instructor Development

- Clear procedural steps
- Embedded formative assessment
- Emphasis on logic reasoning and circuit behavior

Would you like help designing a **rubric for logic gate testing**, a **portfolio template for regulated power supply builds**, or a **crosswalk between NSQF and South African NQF standards**? I can also assist in developing a **learner tracking sheet** for workshop performance or a **project exhibition framework**.

This final portion of **Exercise 4.1.173** from the *Electrician Trade Practical Manual – NSQF Level 5* completes a robust exploration of **digital logic gates**, both using discrete components and integrated circuits (TTL and CMOS families). It's a powerful exercise for developing foundational digital electronics skills, and it aligns beautifully with your goals of portfolio-based assessment, competency tracking, and curriculum reform.

Let's summarize and structure the instructional design, then explore how it can be transformed into high-impact learning and evaluation tools.

□ Exercise 4.1.173: Practice on Various Logics Using Logic Gates and Circuits

□ Learning Objectives

By the end of this exercise, trainees will be able to:

- Construct and verify OR, AND, and NOT gates using switches, lamps, and ICs
- Understand and apply truth tables for basic logic gates

- Identify and test TTL and CMOS logic ICs (7408, 7432, 7404, CD4079)
- Measure voltage levels and interpret logic states
- Use digital IC testers and verify gate functionality

□ Key Tasks and Logic Gate Implementation

□ Task 1-3: OR and AND Gates Using Switches and Lamps

Gate Type	Method	Verification
OR	Switches + Lamp	Truth table ($A + B$)
AND	Switches + Lamp	Truth table ($A \cdot B$)

□ Sample Truth Table (AND Gate)

A	B	Voltage A	Voltage B	Output Y	LED Status
0	0	0V	0V	0	OFF
0	1	0V	5V	0	OFF
1	0	5V	0V	0	OFF
1	1	5V	5V	1	ON

□ Task 4: AND Gate Using IC 7408

- Wire gate-1 (pins 1, 2 $\rightarrow$ 3) and test logic combinations
- Repeat for gate-2 (pins 4, 5 $\rightarrow$ 6), gate-3 (pins 9, 10 $\rightarrow$ 8), gate-4 (pins 12, 13 $\rightarrow$ 11)
- Record outputs and verify truth table

Brief Description of Current Commercialization Plan :

- Provides **benchmarking** against NSQF standards

□ Portfolio-Based Assessment

- Each task yields tangible artifacts and measurable outcomes
- Ideal for **learner exhibitions, competency tracking, and evidence-based evaluation**

□ **Instructor Development**

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- Repeat for gate-2 (pins 4, 5 → 6), gate-3 (pins 9, 10 → 8), gate-4 (pins 12, 13 → 11)
- Record outputs and verify truth table

Status :

New

Submitted Date :

Aug 15, 2025

I-Corps Executive Summary ID :

P-09948

Academic Institution :

Atlantic international university

Entrepreneurial Lead :

tshingombe tshitadi

Entrepreneurial Lead Email :

Emailtshingombefiston@gmail.com

Entrepreneurial Lead Qualification :

Engineering electrical master,

Technical Lead :

tshingombe tshitadi

Technical Lead Email :

Emailtshingombefiston@gmail.com

Technical Lead Qualification :

Edition montesorie

I-Corps Mentor :

tshingombe tshitadi

I-Corps Mentor Email :

Emailtshingombefiston@gmail.com

I-Corps Mentor Qualification :

Intelligence it

Should your team be invited to submit an I-Corps Teams grant proposal, who will be submitting the grant proposal as PI :

Entrepreneurial Lead (EL)

Is your team submitting from another federal agency? If so, please select from the drop down below :

Other Agency

There are two pathways to establish for the NSF I-Corps Teams program.

Which is your team claiming :

Participating in a regional I-Corps Program

Current/Previous NSF Research Award # :

1

What is the IP status of the innovation :

Not disclosed to tech transfer office

Brief Description of Technology (Intellectual Merit) :

Technologie merite award . Education technology and engineering are Cree magniful .policy information system management resolved crime system intelligence recruitment circulum student design in corp system .

Brief Description of Commercial Applications (Broader Impacts) :

Commercial applications are Cree system economic intelligence systems policy circulum cost education award money financial reward

in circuit education means resolved quickly system education marking
completing survey task job in industrial

Brief Description of Current Commercialization Plan :

Planning organisation system delivery system , hierarchy cycle life
longer deployment system in time outcome linear system time table
phase synchronise system robot Education work .chart team

Status :

Declined

Submitted Date :

Feb 3, 2025

I-Corps Executive Summary Detail

I-Corps Executive Summary ID :
P-09874

Academic Institution :

Engineering electrical tshingombe

Entrepreneurial Lead :

tshingombe tshitadi

Entrepreneurial Lead Email :

Emailtshingombefiston@gmail.com

Entrepreneurial Lead Qualification :

Engineering electrical

Technical Lead :

tshingombe tshitadi

Technical Lead Email :

Emailtshingombefiston@gmail.com

Technical Lead Qualification :

Information technology

I-Corps Mentor :

tshingombe tshitadi

I-Corps Mentor Email :

Emailtshingombefiston@gmail.com

I-Corps Mentor Qualification :

Information

Should your team be invited to submit an I-Corps Teams grant proposal,
who will be submitting the grant proposal as PI :

Entrepreneurial Lead (EL)

Is your team submitting from another federal agency? If so, please select
from the drop down below :

Other Agency

There are two pathways to establish for the NSF I-Corps Teams program.
Which is your team claiming :

Relevant current/previous NSF research award

Current/Previous NSF Research Award # :

Engineering

What is the IP status of the innovation :

Patent issued

Patent Number :

1234567891234567891

Brief Description of Technology (Intellectual Merit) :

Engineering electrical award degree diploma framework qualifications
graduate research national trade diploma regulation certificate
outcome job assessments engineering electrical master advance
technologie implementation framework language..

Brief Description of Commercial Applications (Broader Impacts) :

Engineering electricsl frameworks low ruling irregularity regulation
bsck log delivery

Brief Description of Current Commercialization Plan :

Planning auditing engineering electrical snf onformstion intellectual
computer project ..portofolio

Status :

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Submitted Date :

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Create blank.yml enh tshin #1

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build

succeeded Mar 15, 2024 in 5s

Beta Give feedback

0s

1s

Determining the checkout info

Checking out the ref

/usr/bin/git log -1 --format='%H'

'76fb7a88c75b72824ac138782ca3220dbb7de621'

0s

Run echo Hello, world!

Hello, world!

0s

Run echo Add other actions to build,

Add other actions to build,

test, and deploy your project.

0s

Post job cleanup.

/usr/bin/git version

git version 2.43.2

Temporarily overriding HOME='/home/runner/work/_temp/97b82adb-aa33-4005-a32b-b414b5ef0e87' before making global git

config changes

Adding repository directory to the temporary git global config as a safe directory

/usr/bin/git config --global --add safe.directory /home/runner/work/t5h2i0tadi/t5h2i0tadi

/usr/bin/git config --local --name-only --get-regexp core\.sshCommand

/usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'core\.sshCommand' && git config

--local --unset-all 'core.sshCommand' || :"

/usr/bin/git config --local --name-only --get-regexp http\.https\:\/\/github\.com\/\.extraheader

http.https://github.com/.extraheader

/usr/bin/git config --local --unset-all http.https://github.com/.extraheader

/usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'http\.https\:\/\/github\.com\/\.extraheader' && git config --local --unset-all 'http.https://github.com/.extraheader' || :"

0s

Cleaning up orphan processes

Pull requests 1

Actions

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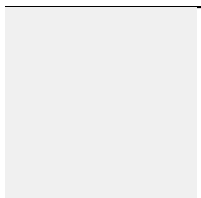
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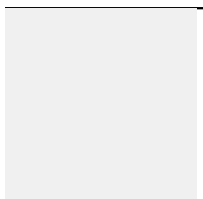
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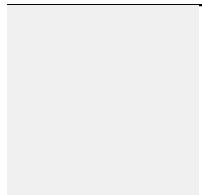
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3	IJETR3156	project career master engineering electrical career mentor job	Volume 15 Issue 1	Paper Accepted	22-Jan-2025	Pending	
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<rshuman@salesforce.nsf.gov>

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Dear tshingombe,

Thank you for your interest in the NSF I-Corps program.

This application has been declined. The applicant does not meet the eligibility requirements. To be eligible, the core technology needs to have been developed at an

accredited institution of higher education and the proposal must be submitted from an institution of higher education. Companies are not eligible to apply with the exception of current NSF Phase I grantees (if you are a Phase I grantee, please send your Phase I award number). In addition, an application requires a minimum of three team members (Entrepreneurial Lead, Technical Lead, and Industry Mentor), and include a team member that has a related and relevant prior NSF research award, or the team must have participated in a regional I-Corps program and received a Letter of Recommendation to the national program.

Thank you,

Ruth Shuman

Program Director

National Science Foundation (NSF)

2415 Eisenhower Boulevard, Alexandria, VA 22314

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The main changes and reasons for changes between the current version of this Privacy Policy and the previous version are the following:

- Consistent wording across Schneider Electric digital platforms and increased transparency on data processing and protection practices;
- Changes to address new regulatory requirements resulting from the CCPA (California Consumer Privacy Act);
- Specifying in our Cookie Notice examples of cookies and similar technologies we use.

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If you have applied for employment with Schneider Electric, the personal information submitted with your job application will be used for recruitment and other customary human resources

purposes as specified in the applicable privacy statement provided in our Career Center.

Schneider Electric is a global company, with legal entities, business processes, management organizations, and system infrastructure that cross borders. This Privacy Policy applies to all Schneider Electric data processing activities run by our controlled subsidiaries, including product and service offerings and digital content (e.g. event registrations, websites, applications, tutorials, e-trainings, newsletters, advertising, and other communication). It may however be supplemented by a more specific privacy notice/statement/policy or even superseded by another policy, specific to a particular Schneider Electric program, product, service, content or entity. It is important that you read the statements made available to you for your full information. For instance, the processing of job candidate applications is governed by the privacy notice posted on our Career Portal.

The data controllers of the data processing activities are the Schneider Electric subsidiaries who have determined the data processing means and purposes. They may vary on a case-by-case basis. For information you can contact us at Global-Data-PrivacyATschneider-electric.com [Replace in the address AT by @]

This Privacy Policy binds all Schneider Electric controlled subsidiaries, and their employees.

Any order made by you online is also subject to the terms and conditions provided on the relevant sites. You must read them.

4. Why do we collect and use personal information?

We use personal information for various purposes, including to fulfill orders and requests, to manage customer and prospect relationships, conduct surveys, improve our products, services, digital content, our websites and mobile applications as well as user journeys, manage user accounts

and programs, analyze activities on our digital platforms, run marketing activities such as online targeting and advertising, provide user with contextual and relevant information, ensure the security of our activities, finance and quality control, trainings, reportings and analytics, protect against fraud, and, more generally, run our business activities.

Our primary goal in collecting information is to provide you with superior service and a smooth, efficient and personalized experience while using our digital content.

You can find more information in section 7.

5. What type of personal information do we process?

Schneider Electric processes various types of personal information including identity and contact related information, professional related information, information about preferences, interactions with us, financial related information, online traffic data and the content you provide to us. In most instances this information is obtained from customers, partners and users. We also purchase lists from marketing agencies and obtain information from our partners, through Cookies and social networks.

Personal information (also called personal data) is any information relating to an identified or identifiable individual. An identifiable individual is one who can be identified, directly or indirectly, in particular by reference to an identifier or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity.

This Privacy Policy does not cover personal information rendered anonymous, that is if individuals are no longer identifiable or are identifiable only with a disproportionately large expense in time, cost, or labor. If anonymized data becomes identifiable, then this

Privacy Policy shall apply.

In most instances we collect personal information directly from users who have a business relationship with us. We may also obtain information through a reseller or a business partner, by purchasing customer lists from marketing agencies, from your online browsing experience, from social networks when you connect with these network's credentials and through Cookies.

You can find more information in section 7.

6. Why do we disclose personal information to others?

We disclose personal information to other Schneider Electric subsidiaries and to our suppliers, advertising and marketing agencies, with social networks if you use their login credentials, with other companies if you register with Schneider Electric credentials, competent regulatory bodies and authorities and business successors.

Schneider Electric is a global group of companies which works as one. To provide the best service to customers, prospects and users, personal data may be accessed by personnel working for different entities. It may be the case, for example, for customer relationship management, sales or product support, marketing, product development purposes, improvement of the products, services and digital content, data quality checks, or security, finance, regulatory and compliance purposes.

We resort to supplier to carry out data processing activities and to provide our products, services and online content to you. These suppliers include, without limitation, providers of hosting facilities, information systems, advertising and marketing agencies, IT support, security services, financial services, carriers who deliver products, outside accounting firms, lawyers and auditors.

We ensure all suppliers working under contract for Schneider

Electric are compliant with data privacy laws and aligned with Schneider Electric guidelines.

We also disclose personal information as follows:

- In connection with the provisions of our products and services, we may disclose personal information to (and receive personal information from) those partners that provide product or service functionality. For example, we may partner with companies to integrate smart home functionality into our smart home hardware products. These disclosures are necessary for you to utilize the products and features.
- In connection with the provision of advertising, we may share some limited personal information (e.g. device identifiers, Cookie identifiers) with ad exchanges or agencies that manage advertising on third-party websites and apps on which you may see advertising. You can restrict this sharing by exercising Your Privacy Choices .
- You may access our digital content and/or register through login credentials of third-party websites (such as Facebook and LinkedIn). If you do so, we will be able to access some of the information you registered on these social networks, to assist you to pre-fill the registration form for Schneider Electric digital content. By using the login credentials of these third-party websites, you may at the same time inform your contacts on these sites that you have created an account with Schneider Electric. If you want to know more about the information accessible by your contacts on these sites and how to restrict their communication, we encourage you to read their terms of use and privacy policies.
- Schneider Electric may disclose your personal information as necessary to potential buyers and successors in title, to facilitate a merger, consolidation, transfer of control or other corporate reorganization in which Schneider Electric participates.
- In other ways described in this Privacy Policy or to which you have otherwise consented.
- Aggregated with other information, in such a way that your identity cannot reasonably be determined (for example, statistical compilations).

You can find more information in section 7.

We will not sell or rent your personal information for monetary consideration to a third party without your permission.

7. Categories of personal information, purposes and disclosures

Category of Personal Information, Representative Data Elements and Sources	Purpose for Collecting and Sharing the PI	Categories of Entities to whom this type of Personal Information is Disclosed for a Business Purpose
Contact Information • Name • Username • Mailing address • Email address • Telephone number • Mobile number We collect this type of information from: • You • Third parties, such as companies that help us maintain the accuracy of our data and data aggregators that help us complete and enhance our records We may obtain business contact information from	We use this type of information to identify you and communicate with you, including: • To send transactional/operational messages (such as confirmations, or delay in deliveries) • To register and manage your account • To send marketing communications, surveys (satisfactory and marketing), and invitations to our digital/physical events • To support corporate transactions or reorganizations • To personalize our communications and	We may disclose this type of information to our Subsidiaries and to Service Providers, including to social media companies that use the data only to identify which of our customers use their platforms so that we can deliver ads to you on the platform. • Companies that deliver our communications, such as the postal service and couriers • Companies that assist us with address hygiene and fulfillment • Other entities as required by law

Category of Personal Information, Representative Data Elements and Sources	Purpose for Collecting and Sharing the PI	Categories of Entities to whom this type of Personal Information is Disclosed for a Business Purpose
data aggregators and other entities services, such as LinkedIn, event and trade shows, and our commercial customers.	provide customer service • For our Everyday Business Purposes	
Relationship information We collect personal information about business professionals associated with our commercial customers, suppliers and partners in the context of our relationships we have with these companies. This includes: • Information about your authority to use our products and place orders with us • Professional interests and credentials • Relationship information, including marketing and communication preferences • Business interests and preferences (product, contact, marketing) • Opportunity information (description, category, stage...) • Visitor logs • Loyalty and rewards program data • Household demographic data, including census data	We use this type of information: • To fulfill our business relationship with you and/or our client • To develop and maintain our relationship with you and our client, including sending your marketing communications as permitted by law and subject to your preferences • To better understand you and to understand our customers generally • For product and service development and improvement • To identify prospective customers • For internal business purposes, such as finance, quality control, training, reporting and analytics • For risk management, fraud prevention and similar purposes • For recordkeeping and compliance,	We may disclose this type of information to our Subsidiaries and Service Providers and to: • Companies with whom we have joint marketing and similar arrangements • Companies as needed to complete the transaction, including delivery companies, agents and manufacturers • Our lawyers, auditors and consultants • Customers, in connection with their audits of Schneider Electric • Other entities as required by law

Category of Personal Information, Representative Data Elements and Sources	Purpose for Collecting and Sharing the PI	Categories of Entities to whom this type of Personal Information is Disclosed for a Business Purpose
Data from social media profiles	including dispute resolution	
We collect this type of information from you and from your company. We may receive your data from other entities, such as trade associations or trade shows.		
Transaction and Interaction Information	We use this type of information:	We may disclose this type of information to our Subsidiaries and Service Providers and to:
- Account information and related records, including purchase history, payment information and history - Records related to use of our websites and apps - Records related to use of our products and devices - Authentication data (passwords, account security questions) - Customer service records - Visitor logs	- To fulfill our business relationship with you, including customer service - For recordkeeping and compliance, including dispute resolution - For internal business purposes, such as finance, quality control, training, reporting and analytics - For risk management, fraud prevention and similar purposes - For our Everyday Business Purposes	- Companies with whom we have joint marketing and similar arrangements - Companies as needed to complete the transaction, including delivery companies, agents and manufacturers - Our lawyers, auditors and consultants - Customers, in connection with their audits of Schneider Electric - Other entities as required by law
We collect this type of information from:		
- You or your company - Third parties that process transactions for us, such as resellers and sales agents		

Category of Personal Information, Representative Data Elements and Sources	Purpose for Collecting and Sharing the PI	Categories of Entities to whom this type of Personal Information is Disclosed for a Business Purpose
Automatically, such as from connected devices		
Inferred and Derived Information Propensities, attributes and/or scores generated by internal analytics programs We create inferred and derived data elements by analyzing our relationship and transactional information.	We combine inferred data with other relationship information and use this type of information: - To better understand you and to understand our customers generally - For product and service development and improvement - For internal business purposes, such as quality control, training and analytics - For our Everyday Business Purposes	We may disclose this type of information to our Subsidiaries and Service Providers and to: - Companies with whom we have joint marketing arrangements - Our lawyers, auditors and consultants - Other third parties as required by law
Online & Technical Information - IP Address - Device identifiers and characteristics - Advertising ID - Web Server Logs - First Party Cookies - Third Party Cookies - Web beacons, clear gifs, pixel tags - Server log records - Activity log records - We collect this type of information from: - You and from your computer or devices when you interact	We use this type of information: - For system administration, technology management, including optimizing our websites and applications, - For information security and cybersecurity purposes, including detecting threats - For recordkeeping, including logs and records that maintained as part	We may disclose this type of information to our Subsidiaries and Service Providers including to companies such as Google that use the data collected by cookies and similar means to help us with our online advertising programs, and to: Companies that assist with our information technology and security programs, including companies such as network

Category of Personal Information, Representative Data Elements and Sources	Purpose for Collecting and Sharing the PI	Categories of Entities to whom this type of Personal Information is Disclosed for a Business Purpose
with our platforms, websites and applications. For example, when you visit our websites, our server logs record your IP address and other information. - Automatically, via technologies such as cookies, web beacons, when you visit our website or other websites. - Third parties, including computer security services and advertising partners	of Transaction Information - To better understand our customers and prospective customers and to enhance our Relationship Information, including by associating you with different devices and browsers that they may use - For online targeting and advertising purposes - For our Everyday Business Purposes	security services who retain information on malware threats detected - Companies that assist with fraud prevention, detection and mitigation - Third party network advertising partners - Our lawyers, auditors and consultant - Other entities as required by law We also disclose this information with third parties if we have your consent to place third party advertising cookies. To learn more and review your cookie settings, please read our Cookie Notice.
IoT and Sensor data - Commands, usage and other data collected, computed or produced by smart home and connected products (such as home automation, energy management, safety and security, and electrical products) and their associated apps - Diagnostics data (such as context and description of	We use this type of information: - To provide the services - To improve and modify product, and create any new products, services and solutions, - To generate business and/or sales with you - To allow compliance and/or enforcement of legal requirements. - To enable product	We may disclose this type of information to our Subsidiaries and Service Providers, to: - Companies that assist with our information technology and security programs, including network security services and cybersecurity consortia - Companies that assist with fraud prevention, detection and mitigation

Category of Personal Information, Representative Data Elements and Sources	Purpose for Collecting and Sharing the PI	Categories of Entities to whom this type of Personal Information is Disclosed for a Business Purpose
detected errors) Geolocation data We collect this type of information automatically from your connected devices.	functionality - For internal business purposes, such as product development, security, and quality control - For relationship purposes, including analytics regarding product usage - For our Everyday Business Purposes	- Other companies, such as technology partners, as needed to complete the transactions including entities that provide products and services that you connect with ours - Our lawyers, auditors and consultants - Other entities as required by law
Audio Visual Information We collect this type of information from: - Photographs • Video images • CCTV recordings • Call center recordings and call monitoring records Voicemails - We collect this type of information from: - You - Automatically, such as when we record calls to our call center and use CCTV cameras in our facilities. - Third parties that provide access to photos and videos you make publicly available, such as on social media	We use this type of information: - For internal business purposes, such as call recordings used for training, coaching or quality control - For relationship purposes, such as use of photos and videos for social media purposes - For premises security purposes and loss prevention - For our Everyday Business Purposes	We may disclose this type of information to our Subsidiaries and Service Providers and to: - Companies that assist with our information technology and security programs, and our loss prevention programs - Our lawyers, auditors and consultants - Other entities as required by law
Compliance data We collect this type of	We use this type of information:	We may disclose this type of information to our

Category of Personal Information, Representative Data Elements and Sources	Purpose for Collecting and Sharing the PI	Categories of Entities to whom this type of Personal Information is Disclosed for a Business Purpose
information from: • Compliance program data, such as records maintained to demonstrate compliance with applicable laws • Product safety data and other regulatory information • Records related to consumer preferences, such as your opt-ins and opt-outs of marketing programs • Records related to CCPA rights requests	• To comply with and demonstrate compliance with applicable laws • For legal matters, including litigation and regulatory matters, including for use in connection with civil, criminal, administrative, or arbitral proceedings, or before regulatory or self-regulatory bodies, including service of process, investigations in anticipation of litigation, execution or enforcement of judgments and orders • For internal business purposes, such as risk management, audit, internal investigations, reporting, and analytics • For our Everyday Business Purposes	Subsidiaries and Service Providers and to: • Our lawyers, auditors and consultants. • Regulators, customers and other third parties, in connection with their audits of Schneider Electric • Other entities (including government agencies, courts and opposing law firms, consultants, process servers and parties to litigation) in connection with legal matters
We collect this type of information from: • You • Third parties, including companies that help us conduct internal investigations • Third parties, such as consumer reporting agencies and data aggregators who conduct background screening for us		

8. Your content

You may choose to contribute content, including photos or comments, to online forums, applications or other digital platforms operated by Schneider Electric. Your content must be harmless. It must respect the law, the rights and interests of others. You need to have obtained consent before sharing someone else's data. You should apply caution before sharing information in a forum.

The content provided to us must respect the rights and interests of others, including their rights to protection of personal information and privacy. It should not be offensive, disrespectful or be harmful in any way.

Any provision of personal information to Schneider Electric about another individual must be compliant with privacy laws, including with notice and consent requirements for the disclosure of that information.

While Schneider Electric strives to protect your personal information, providing it online on shared forums is not risk-free. If you post, comment, indicate interest, or share personal information, including photographs, to any forum, social network or blog, please be aware that any personal information you submit can be read, viewed, collected, or used by other users of these forums, and could be used to contact you, send you unsolicited messages, or for purposes that neither you nor Schneider Electric have control over. Schneider Electric is not responsible for the personal information you choose to submit in these forums. You should apply caution before deciding to share information about yourself or another person.

9. How do we protect personal information?

Schneider Electric complies with widely recognized key data protection principles (fairness, purpose limitation, data quality, data retention, compliance with individuals' rights, security) and takes reasonable measures for the security of

personal information.

Schneider Electric respects the privacy rights and interests of individuals. Schneider Electric and its subsidiaries observe the following principles when processing personal information:

1. Processing personal information fairly and lawfully;
2. Collecting personal information for specified, legitimate purposes and not processing it further in ways incompatible with those purposes;
3. Collecting personal information which is relevant to and not excessive for the purposes for which it is collected and used. We may render information anonymous when feasible and appropriate, depending on the nature of the data and the risks associated with the intended uses;
4. Maintaining accurate personal information, and where necessary, kept up-to-date. We will take reasonable steps to rectify or delete information that is inaccurate or incomplete;
5. Keeping personal information only as long as it is necessary for the purposes for which it was collected and processed;
6. Processing personal information in accordance with individuals' legal rights;
7. Taking appropriate technical, physical, and organizational measures to prevent unauthorized access, unlawful processing, and unauthorized or accidental loss, destruction, or damage to personal information;
8. When processing sensitive personal information, ensuring appropriate notice and consent or that the processing otherwise complies with applicable law;

Schneider Electric and all its subsidiaries must ensure that the above principles are complied with.

Schneider Electric and its subsidiaries are committed to taking commercially reasonable technical, physical, and organizational measures to protect personal information against unauthorized access, unlawful processing, accidental loss or damage, and unauthorized destruction. We offer the use of secure servers to enable you to place orders or to access your account information. We implement access control measures for our internal systems that hold personal information. Authorized users are given access

to such systems through the use of a unique identifier and password. Access to personal information is provided to our staff for the sole purpose of performing their job duties. We sensitize our employees on proper use and handling of personal information. We also require our service providers to maintain compliant security measures. We implement security measures to determine the identity of registered users, so that appropriate rights and restrictions can be enforced for these users. In case of a registered user, we use both log ins and passwords for authentication. You are responsible for maintaining the security of your log-in credentials.

Schneider Electric will retain your personal information for as long as the information is needed for the purposes for which it was collected and for any additional period that may be required or permitted by law, such as for business, legal, accounting, or reporting requirements. The length of time your personal information is retained depends on the purpose(s) for which it was collected, how it is used, and the requirements to comply with applicable laws, regulations or contracts.

More precise information is provided in privacy notices applicable to specific digital content. In general data retention periods are determined taking into consideration:

- The duration of our relationship (e.g., contract performance duration, account de-activation, your legitimate need to be recognized when contacted by us)
- Legal requirements for keeping data
- Statute of limitations

For marketing purposes, we keep relevant customer data for three years after the end of our relationship or since the last interaction with us.

By using our digital content or providing personal information to us, you agree that we may communicate with you electronically or otherwise about related security, privacy, use and administrative activities.

In spite of our efforts to implement appropriate security measures, online browsing carries inherent risks and we cannot guarantee that it is risk-free.

10. Third-party websites and social media

You should read the privacy policy of third-party websites and social media and adjust privacy settings as you see fit. Non-Schneider Electric websites and platforms are not covered by this Privacy Policy.

Schneider Electric digital platforms may provide links to third-party applications, products, services, or websites for the user convenience and information. If you access those links, you will leave the Schneider Electric digital platform. Schneider Electric does not control those third-party sites or their privacy practices, which may differ from Schneider Electric's practices. We do not endorse or make any representations about third-party sites. The personal information you choose to provide or that is collected by, these third parties are not covered by the Schneider Electric Privacy Policy. We encourage you to review the privacy policy of any site you interact with, before allowing the collection and use of your personal information.

We also provide social media links that enable you to share information with your social networks and to interact with Schneider Electric on various social media sites. The use of these links may result in the collection or sharing of information about you. We encourage you to review the privacy policies and the privacy settings of the social media sites with which you interact to make sure you understand the information that may be collected, used, and shared by those sites and to adjust these settings as you see fit.

11. Your Privacy Choices

Schneider Electric will comply with your data protection rights as applicable, including your rights to request access

to your personal information and to request that it be deleted or amended. You can always opt out of any direct marketing activity performed by Schneider Electric.

This section tells you how to exercise your data protection rights, as applicable under relevant data protection laws, with respect to the personal information that we collect for our own business purposes. If we are processing your information as a service provider for another company, you will need to contact that company to exercise your rights:

- **Access requests.** You have the right to request a copy of the personal information that Schneider Electric maintains about you. To exercise this right, [please click here for our privacy request portal](#),
- **Correction requests.** You have the right to request that we update or correct your personal information. To exercise this right, [please click here for our privacy request portal](#) and provide information about the correction that you wish us to make. We will process your request as required by law.
- **Deletion requests.** You have the right to request that we delete or anonymize your personal information. To exercise this right, [please click here for our privacy request portal](#) . We will process your request as required by law. Please understand that Schneider Electric cannot delete personal information in those situations where our retention is required for our Schneider Electric's internal business purposes or otherwise permitted by law (such as for fraud prevention or legal compliance).
- **Inquiries and complaints.** You have the right to ask us about our privacy practices or to lodge a complaint if you believe that we have violated your privacy rights or failed to properly secure your personal information. To exercise these rights, please email your specific question or concern to DPO@schneider-electric.com.
- **Right to Opt-Out.** Subject to applicable laws, you have the right to opt out of certain types of processing, including:
 - to opt-out of the "sale" (as such term is defined under applicable law) of your personal information. However,

Schneider Electric does not sell your personal information for monetary consideration.

- o to opt-out of online targeted advertising and the “sharing” of personal information for cross-contextual behavioral targeting: You can exercise this right by adjusting your browser settings (see our section How to control Cookies in Schneider Electric Cookie Notice) and [setting your cookie preferences here](#).
- o to opt-out of any processing of personal information for purposes of making decisions that produce legal or similarly significant effects. However, Schneider Electric does not use any profiling or automated decision-making tools that significantly affect individuals. You would be given notice of any such activity.
- o to opt-out of emails, click the link labeled “unsubscribe” at the bottom of any email we send you or to revoke permissions that you may have given to send text messages, text STOP in response to any message.

If you have more than one email address or if you have changed your email address, please email Global-Data-Privacy@schneider-electric.com for assistance with changing your marketing preferences. Also, please note that even if you opt-out of commercial emails, we may still need to contact you with important transactional/operational information in relation to our relationship.

- **Limit the use of your sensitive personal information:** California residents have the right to limit secondary uses and disclosures of sensitive personal information. In general, Schneider Electric only uses and discloses sensitive personal information as needed to fulfill the purpose for which it was collected. However, if you have provided sensitive personal information to us, you may ask us to delete it using the process above.

In some cases, we may need to contact you to verify your identity and to obtain documentation to support your request.

Our websites also recognize Global Privacy Control signals if you are based in California or Virginia and will respect your opt-out request if it provided by your browser

California residents: please read the Important Information for California Residents for specific information about your California Privacy Rights and for alternative methods for submitting California Privacy Rights requests.

Country-specific sections may supplement this section.

12. Important information for California residents

Schneider Electric in the USA is providing this supplemental privacy notice to give California residents the additional information required by the California Consumer Privacy Act (the “CCPA”).

Schneider Electric is primarily focused on serving business and professional customers, however do collect consumer data from individuals who provide it to us via our online forms or by otherwise interacting with our websites or apps. We also receive consumer data in connection with our smart home products. This supplemental privacy notice explains how we comply with the CCPA for consumer and business professional information.

12.1 CCPA Rights

The CPRA provides California residents with specific privacy rights:

- The right to know what personal information and sensitive personal information we collect
- The right to access your personal information
- The right to correct inaccurate personal information
- The right to request that we delete your personal information
- The right to know what categories of personal information are sold to third parties and to opt-out of that sale

- The right to know what categories of personal information are shared with third parties for cross-contextual behavioral targeting and to opt-out that sharing
- The right to limit the use and disclosure of sensitive personal information, and
- The right not to be retaliated against for exercising your privacy rights

12.2 How to Exercise Your Privacy Choices?

If you are a California resident, you may exercise your rights or authorize another person to act on your behalf by:

- Clicking here: [Your Privacy Choices](#)
- Calling Schneider Electric at 800-789-3508
- Emailing us: Global-Data-Privacy@schneider-electric.com

Please note that we will need to verify your identity before we can fulfill your request. Because the information that we maintain subject to CCPA generally consists of marketing information, we will generally verify your identity using your email address. We will respond to requests using the email address that is associated with the information we maintain.

If you are exercising CPRA access or deletion rights on behalf of another person, please understand that what will need to verify your authority with the person you seek to represent.

If you would like to designate an agent, please send an email from your own email address to Global-Data-Privacy@schneider-electric.com indicating the name and email address of your agent. We will respond to that person's requests using both your email address and the agent's email address.

Please understand that your rights are subject to some limitations. If you request that we delete your personal information, we will do so except in those situations where our retention is required for our internal business purposes, to finalize the ongoing business operations we have with you, to log your request or otherwise

permitted by CCPA (such as for fraud prevention or legal compliance). In these situations, we will retain your information in accordance with our records retention program and securely delete it at the end of the retention period.

Additionally, please note that many companies sell and install Schneider Electric products. We do not operate these companies, and we do not have any access to their databases. If you have registered with or purchased Schneider Electric products from another company, please contact that company directly to exercise your CCPA rights.

12.3 Financial Incentives

Schneider Electric collects personal information in order to deliver offers and promotions and to enable loyalty programs. While we cannot calculate the precise value of your information to us, our offers and incentives generally reflect the value of the relationships that we have with the individuals who participate in the program.

We will not discriminate against you if you exercise your rights under CCPA. However, if you ask us to delete your information, you will not be able to receive additional offers or promotions. Any offers or promotions sent to you previously will continue to be honored according to their original terms.

12.4 Sensitive Personal Information

Schneider Electric uses and discloses the following categories sensitive personal information. We do not process any sensitive personal information for the purpose of informing characteristics about you.

Category of Sensitive Personal Information	Purposes for Use and Disclosure	Can I limit this Use and Disclosure?
Government-issued Identification Numbers	We use and disclose Government-issued Identification Numbers in connection with payments made to professionals, for tax reporting and compliance.	No
Account log-in credentials	We use and disclose Account Access Information as needed to allow you to access your account, for account security purposes.	No
Financial account or payment card numbers	We use and disclose financial account and payment card numbers as needed to process transactions	No
Precise Geolocation Data	We may collect precise geolocation data in order to provide specific functionality related to the services. We also use it to deliver content to you based on your location.	Yes
Race or Ethnicity Disability Status Sexual Orientation	If you provide this information to us, we use and disclose these data elements in connection with our supplier diversity programs.	No

We do not collect other categories of sensitive personal information, such as biometric identifiers, the contents of mail, email or texts, or other non -public information about your race, ethnicity, health, sex life or sexual orientation.

1. *Personal information of children under 16 cannot be sold or shared without affirmative consent.*
2. *Schneider Electric's Subsidiaries are companies that are directly or indirectly controlled by Schneider Electric SE.*
3. **Everyday Business Purposes** encompasses the Business Purposes (as defined in the CCPA) and following related purposes for which personal information may used:
 - o *To provide the information, product or service requested by the individual or as reasonably expected given the context in which with the personal information was*

collected (such as customer credentialing, providing customer service, personalization and preference management, providing product updates, bug fixes or recalls, and dispute resolution);

- o For identity and credential management, including identity verification and authentication, and system and technology administration;*
- o To protect the security and integrity of systems, networks, applications and data, including detecting, analyzing and resolving security threats, and collaborating with cybersecurity centers, consortia and law enforcement about imminent threats;*
- o For fraud detection and prevention;*
- o For legal and regulatory compliance, including all uses and disclosures of personal information that are required by law or reasonably needed for compliance with company policies and procedures, such as: anti-money laundering programs, security and incident response programs, intellectual property protection programs, and corporate ethics and compliance hotlines;*
- o For corporate audit, analysis and reporting;*
- o To enforce our contracts and to protect against injury, theft, legal liability, fraud or abuse, and to protect people or property, including physical security programs;*
- o To de-identify the data or create aggregated datasets, such as for consolidating reporting, research or analytics;*
- o To make back-up copies for business continuity and disaster recovery purposes; and*
- o For corporate governance, including mergers, acquisitions and divestitures.*

- Technical Expert Assessment (TEX) Request Form
- Rev. 01-00
- Internal
- Date:
- Case started already? If yes, please provide: Case #:
- Material Returned already? If yes, please provide: CNI/RMA #: Shipping Carrier & Tracking #:
- Material Exchanged already? If yes, please indicate at the bottom if we should return the material after analysis if credit is denied.
-
- Preferred Method of Contact:
- Email
- Phone
- Preferred Frequency:
- Daily
- Weekly

- Bi-Weekly
 - Milestones
 - Only if Delay
 - Check the box next to who is to be the primary contact for communication.
 -
 -
 - Company Name:
 - Address:
 - City:
 - State:
 - Zip:
 - Customer Contact:
 - Phone #:
 - Email Address:
 - Company Name:
 - Address:
 - City:
 - State:
 - Zip:
 - Account #:
 - Distributor/ OEM Contact:
 - Phone #:
 - Email Address:
 -
 -
 -
 - Company Name:
 - Address:
 - City: State: Zip:
 - Technical Contact:
 - Phone #:
 - Email Address:
 - Name: Field Sales Rep?
 - Location:
 - Phone #:
 - Email Address:
 -
 -
 -
 - Q2C # / SO #:
 - Quantity:
 - PO #:
 - Check box if material is in warranty
 - Catalog/Part #:
 - Series #:
 - Return item if credit is denied?
 - Serial # / Date Code:
 - Yes
 - No
 - End User
 - Distributor/ OEM
 - Other
 - Technical Contact Email:
 - SE Contact
 - Our Technical Support Team will contact the “Technical Contact” listed above to obtain detailed information regarding the inoperative product. Please provide a brief description below so that we understand the nature of your request.
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Documentation

Technical documentation

Search for in-depth articles on Microsoft developer tools and technologies.

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Product directory

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Learn technical skills to prepare you for your future. Find training, virtual events, and opportunities to connect with the Microsoft student developer community.

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Dive deep into learning with interactive lessons, earn professional development hours, acquire certifications and find programs that help meet your goals.

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Plan

Discover Data Concepts and Implement Solutions with Microsoft Fabric

3 milestones

This plan covers data discovery, classification, and protection, alongside implementing data warehouses using Microsoft Fabric. You'll learn key technologies like Azure and Microsoft Fabric, and tasks such as data management and analytics.

- Edited on 8/18/2025
- Created by [tshingombe tshitadi](#) with AI on Microsoft Learn

Learning outcomes

- By the end of this plan, you'll be able to identify and apply core data concepts and roles in data management.
- By the end of this plan, you'll be able to implement a data warehouse using Microsoft Fabric, including loading and querying data.
- By the end of this plan, you'll be able to utilize Microsoft Purview for data discovery and protection.

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Skills earned upon completion

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3 milestones in this plan

Milestone 1

Progress:

0%

Understand data concepts and core data principles

Learn fundamental data concepts, analytics, and roles using Microsoft Azure and SQL Server. This section covers data discovery, classification, and protection, essential for effective data management.

Days to milestone: 1

- Learning Path

[Understand data concepts](#)

- o 3 modules
- o 1 hr 34 min

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□ □ □ Learning Path

[Introduction to Microsoft Azure Data core data concepts](#)

- 2 modules
- 59 min

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Milestone 2

Progress:

0%

Implement data warehousing solutions with Microsoft Fabric

Explore the data warehousing process using Microsoft Fabric. Learn to load, monitor, secure, and query data warehouses, enhancing your data management skills.

Days to milestone: 3

- Learning Path

[Implement a data warehouse with Microsoft Fabric](#)

- o 6 modules
- o 5 hr 57 min

Implement a data warehouse with Mi...

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□ □ □ □ Learning Path

[Get started with Microsoft Fabric](#)

- 10 modules
- 10 hr 31 min

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Milestone 3

Progress:

0%

Support data protection and cybersecurity solutions

Understand how Microsoft supports data discovery, classification, and protection in cybersecurity. This section focuses on essential data protection capabilities within M365 and Azure.

Days to milestone: 1

- Learning Path

[Learn how Microsoft supports data discovery, classification, and protection as part of a cybersecurity solution](#)

- o 2 modules
- o 1 hr 50 min

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Plan

Discover Data Concepts and Implement Solutions with Microsoft Fabric (2)

3 milestones

This plan covers data discovery, classification, and protection, alongside implementing data warehouses using Microsoft Fabric. You'll learn key technologies like Azure and Microsoft Fabric, and tasks such as data management and analytics.

RESEARCH BACKGROUND & CAREER PORTFOLIO Title: Digital Automation and Engineering Documentation Using VBA Macros and Form Controls Author: Tshingombe Tshitadi Fiston Institution: St Peace College / City Power / DBE / DHET Field: Engineering Education, Digital Systems, Technical Training Portfolio Theme: Integra

- Edited on 8/18/2025
- Created by [tshingombe tshitadi](#)

Learning outcomes

- By the end of this plan, you'll be able to identify and apply core data concepts and roles in data management.
- APPLICATIONS & IMPACT □ Institutional Use • DBE and DHET curriculum mapping • ISITA and Umalusi assessment

compliance • City Power and Eskom technical training modules • TVET college portfolio standardization □ Career Development • Portfolio for job applications and internships • Evidence of technical and digital competency • Integration with GitHub for code versioning • Alignment with NATED and engineering qualifications Would you li

- By the end of this plan, you'll be able to design and implement a VBA macro-driven workbook that automates: • Student registration and assessment tracking • Engineering drawing analysis and documentation • PLC command simulation and device interfacing • Portfolio generation for career readiness 2 □ VBA MACRO & FORM CONTROL SYSTEM □ Key Modules Macro Purpose reset_form() Clears form fields, initializes default values, saves workbook Macro2() Operates calculatimplement a data warehouse using Microsoft Fabric, including loading and querying data.
- By the end of this plan, you'll be able to utilize Microsoft Purview for data discovery and protectionVBA FORM CONTROL SYSTEM OVERVIEW Project Title: Multi-Form VBA Interface for Engineering Documentation and Student Record Automation Author: Tshingombe Tshitadi Fiston Platform: Microsoft Excel + VBA + MSForms Use Case: Engineering education, student records, PLC simulation, project documentation □ SYSTEM ARCHITECTURE Your code spans multiple UserForms, Modules, and Event Handlers, each serving a specific function: □ UserForms Breakdown For.

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Skills earned upon completion

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3 milestones in this plan

Milestone 1

Progress:

0%

Implement data warehousing solutions with Microsoft Fabric

Explore the data warehousing process using Microsoft Fabric. Learn to load, monitor, secure, and query data warehouses, enhancing your data management skills.

Days to milestone: 3

- Learning Path

[Implement a data warehouse with Microsoft Fabric](#)

- o 6 modules
- o 5 hr 57 min

Implement a data warehouse with Mi...

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□ □ □ Learning Path

[Get started with Microsoft Fabric](#)

- 10 modules
- 10 hr 31 min

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Milestone 2

Progress:

0%

Understand data concepts and core data principles

Learn fundamental data concepts, analytics, and roles using Microsoft Azure and SQL Server. This section covers data discovery, classification, and protection, essential for effective data management.

Days to milestone: 1

- Learning Path

[Understand data concepts](#)

- o 3 modules
- o 1 hr 34 min

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□ □ □ □ Learning Path

[Introduction to Microsoft Azure Data core data concepts](#)

- 2 modules
- 59 min

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Milestone 3

Progress:

0%

Support data protection and cybersecurity solutions

Understand how Microsoft supports data discovery, classification, and protection in cybersecurity. This section focuses on essential data protection capabilities within M365 and Azure.

Days to milestone: 1

- Learning Path

[Learn how Microsoft supports data discovery, classification, and protection as part of a cybersecurity solution](#)

- o 2 modules
- o 1 hr 50 min

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Plan

Discover Data Concepts and Implement Solutions with Microsoft Fabric (3)

3 milestones

This plan covers data discovery, classification, and protection, alongside implementing data warehouses using Microsoft Fabric. You'll learn key technologies like Azure and Microsoft Fabric, and tasks such as data management and analytics.
 RESEARCH BACKGROUND & CAREER PORTFOLIO 2 1
 RESEARCH BACKGROUND 2 2
 VBA MACRO & FORM CONTROL SYSTEM 3 3
 CAREER PORTFOLIO COMPONENTS 3 4
 APPLICATIONS & IMPACT 3
 APPLICATION CONTEXT 5
 VBA FORM CONTROL SYSTEM OVERVIEW 6
 SYSTEM ARCHITECTURE 6
 EVENT HANDLER LOGIC 7
 PORTFOLIO INTEGRATION 7

- Edited on 8/18/2025
- Created by [tshingombe tshitadi](#)

Learning outcomes

- By the end of this plan, you'll be able to identify and apply core data concepts and roles in data man
 RESEARCH BACKGROUND & CAREER PORTFOLIO 2 1
 RESEARCH BACKGROUND 2 2
 VBA MACRO & FORM CONTROL SYSTEM 3 3

CAREER PORTFOLIO COMPONENTS 3 4 APPLICATIONS & IMPACT 3 APPLICATION CONTEXT 5 VBA FORM CONTROL SYSTEM OVERVIEW 6 SYSTEM ARCHITECTURE 6 EVENT HANDLER LOGIC 7 PORTFOLIO INTEGRATION 7 NEXT STEPS 8 ⚙ SYSTEM MODULE: VBA + ENGINEERING FAULT ANALYSIS 8 VBA UserForm3 Configuration 8 End Sub THREE-PHASE FAULT agement.

- By the end of this plan, you'll be able to implement a data warehouse using Microsoft Fabric, including loading and querying data. RESEARCH BACKGROUND & CAREER PORTFOLIO 2 1 RESEARCH BACKGROUND 2 2 VBA MACRO & FORM CONTROL SYSTEM 3 3 CAREER PORTFOLIO COMPONENTS 3 4 APPLICATIONS & IMPACT 3 APPLICATION CONTEXT 5 VBA FORM CONTROL SYSTEM OVERVIEW 6 SYSTEM ARCHITECTURE 6 EVENT HANDLER LOGIC 7 PORTFOLIO INTEGRATION 7 NEXT STEPS 8 ⚙ SYSTEM MODULE: VBA + ENGINEERING FAULT ANALYSIS 8 VBA UserForm3 Configuration 8 End Sub
- By the end of this plan, you'll be able to utilize Microsoft Purview for data discovery and protect AI/ML Deployment & Scaling in Software Engineering 48 Overview 49 Portfolio Evidence: 49 Cross-Domain Integration Strategy 49 Strategic Impact 49 ⚙ Specialist Engineering in Electrochemical Systems for Infrastructure 50 Core Modules & Strategic Themes 50 Energy Storage and Battery Technology 50 Core Modules & Strategic Themes 50 Advanced Robotic Process Automation in Electrical Engineering 51 Core Modules & Strategiion.

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Skills earned upon completion

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3 milestones in this plan

Milestone 1

Progress:

0%

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Learn fundamental data concepts, analytics, and roles using Microsoft Azure and SQL Server. This section covers data discovery, classification, and protection, essential for effective data management.

Days to milestone: 1

- Learning Path

[Understand data concepts](#)

- o 3 modules
- o 1 hr 34 min

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□ □ □ Learning Path

[Introduction to Microsoft Azure Data core data concepts](#)

- 2 modules
- 59 min

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Milestone 2

Progress:

0%

Implement data warehousing solutions with Microsoft Fabric

Explore the data warehousing process using Microsoft Fabric. Learn to load, monitor, secure, and query data warehouses, enhancing your data management skills.

Days to milestone: 3

- Learning Path

[Implement a data warehouse with Microsoft Fabric](#)

- o 6 modules
- o 5 hr 57 min

Implement a data warehouse with Mi...

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□ □ □ □ Learning Path

[Get started with Microsoft Fabric](#)

- 10 modules
- 10 hr 31 min

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Milestone 3

Progress:

0%

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Understand how Microsoft supports data discovery, classification, and protection in cybersecurity. This section focuses on essential data protection capabilities within M365 and Azure.

Days to milestone: 1

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[Learn how Microsoft supports data discovery, classification, and protection as part of a cybersecurity solution](#)

- o 2 modules
- o 1 hr 50 min

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Start your plan and begin your learning journey today.

You have been invited to start the Discover Data Concepts and Implement Solutions with Microsoft Fabric (2) plan on Microsoft Learn.

A plan is a set of curated and organized content on Microsoft Learn with milestones designed to help you to achieve learning outcomes.

By completing this plan, you'll achieve the following learning outcomes:

- By the end of this plan, you'll be able to identify and apply core data concepts and roles in data management. APPLICATIONS & IMPACT



Institutional Use

- DBE and DHET curriculum mapping
- ISITA and Umalusi assessment compliance

- City Power and Eskom technical training modules
- TVET college portfolio standardization



Career Development

- Portfolio for job applications and internships
- Evidence of technical and digital competency
- Integration with GitHub for code versioning
- Alignment with NATED and engineering qualifications

Would you li

- By the end of this plan, you'll be able to design and implement a VBA macro-driven workbook that automates:

- Student registration and assessment tracking
- Engineering drawing analysis and documentation
- PLC command simulation and device interfacing
- Portfolio generation for career readiness



VBA MACRO & FORM CONTROL SYSTEM



Key Modules

Macro Purpose

reset_form() Clears form fields, initializes default values, saves workbook

Macro2() Operates calculatimplement a data warehouse using Microsoft Fabric, including loading and querying data.

- By the end of this plan, you'll be able to utilize Microsoft Purview for data discovery and protectionVBA FORM CONTROL SYSTEM OVERVIEW

Project Title: Multi-Form VBA Interface for Engineering Documentation and Student Record Automation Author: Tshingombe Tshitadi Fiston Platform: Microsoft Excel + VBA + MSForms Use Case: Engineering education, student records, PLC simulation, project documentation



SYSTEM ARCHITECTURE

Your code spans multiple UserForms, Modules, and Event Handlers, each serving a specific function:



UserForms Breakdown

For.

Start your plan today!

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Review plan

Required fields are marked with an asterisk

Plan

Develop AI Solutions with Azure

In this plan, you'll learn to implement AI solutions using Azure AI services, focusing on knowledge mining, information extraction, and developing AI agents. Key technologies include Azure AI Search and Azure AI Foundry.

Learning outcomes

- By the end of this plan, you'll be able to implement knowledge mining solutions using Azure AI Search to extract insights from data.
- By the end of this plan, you'll be able to develop AI information extraction solutions that automate data capture and enhance business processes.
- By the end of this plan, you'll be able to create and deploy AI agents using Azure AI Foundry to improve user interactions.

Estimated time to complete: 29 days

6 milestone(s) in this plan

Get started with Azure AI Services (1 item)

Learn the fundamentals of Azure AI Services, including key concepts and tools. This section covers getting started with AI services and foundational knowledge for further learning.

Days to milestone: 5

Get started with Azure AI Services - Training

Develop AI information extraction solutions (1 item)

Develop AI Agents on Azure (1 item)

Implement knowledge mining with Azure AI Search (1 item)

Develop generative AI apps in Azure (1 item)

Microsoft Certified: Azure AI Engineer Associate - Certifications (1 item)

Is this plan helpful?

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Plan

Develop AI Solutions with Azure engineering dATABASE

6 milestones

In this plan, you'll learn to implement AI solutions using Azure AI services, focusing on knowledge mining, information extraction, and developing AI agents. Key technologies include Azure AI Search and Azure AI Foundry. □ AI/ML Deployment & Scaling in Software Engineering 48 □ Overview 49 Portfolio Evidence: 49 □ Cross-Domain Integration Strategy 49 □ Strategic Impact 49 ✳ Specialist Engineering in Electrochemical Systems for Infrastructure 50 □ Core Modules & Strategic Themes 50 □ Energy Storage and Battery Technology 50 □ Core Modules

- Edited on 8/18/2025
- Created by [46307064](#)

Learning outcomes

- By the end of this plan, you'll be able to implement knowledge mining solutions using Azure AI Search to extract insights from data. □ AI/ML Deployment & Scaling in Software Engineering 48 □ Overview 49 Portfolio

Evidence: 49 □ Cross-Domain Integration Strategy 49 □ Strategic Impact 49 ⚙
Specialist Engineering in Electrochemical Systems for Infrastructure 50 □ Core
Modules & Strategic Themes 50 □ Energy Storage and Battery Technology 50
□ Core Modules & Strategic Themes 50 □ Advanced Robotic Process
Automation in Electrical Engineering

- By the end of this plan, you'll be able to develop AI information extraction solutions that automate data capture and enhance business processes.
- By the end of this plan, you'll be able to create and deploy AI agents using Azure AI Foundry to improve user interactions.

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Skills earned upon completion

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6 milestones in this plan

Milestone 1

Progress:

0%

Get started with Azure AI Services

Learn the fundamentals of Azure AI Services, including key concepts and tools. This section covers getting started with AI services and foundational knowledge for further learning.

Days to milestone: 5

- Learning Path

[Develop generative AI apps in Azure](#)

- o 8 modules
- o 7 hr 29 min

Develop generative AI apps in Azur...

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Milestone 2

Progress:

0%

Implement knowledge mining with Azure AI Search

Master knowledge mining techniques using Azure Cognitive Search. This section dives into implementing search solutions that leverage AI for enhanced information retrieval.

Days to milestone: 6

- Learning Path

[Implement knowledge mining with Azure AI Search](#)

- o 8 modules
- o 6 hr 24 min

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Milestone 3

Progress:

0%

Develop AI information extraction solutions

Explore how to extract information from various content types using Azure AI services. This section focuses on practical applications and techniques for information extraction.

Days to milestone: 4

- Learning Path

[Develop AI information extraction solutions in Azure](#)

- o 5 modules
- o 4 hr 18 min

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Milestone 4

Progress:

0%

Develop AI Agents on Azure

Learn to create AI agents using Azure AI Foundry and Semantic Kernel. This section covers agent development techniques and frameworks for building intelligent applications.

Days to milestone: 6

- Learning Path

[Develop AI agents on Azure](#)

- o 7 modules
- o 6 hr 28 min

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Milestone 5

Progress:

0%

Develop generative AI apps in Azure

Learn to create generative AI applications using Azure services. This section covers the development of innovative AI solutions and applications for various use cases.

Days to milestone: 7

- Learning Path

[Develop generative AI apps in Azure](#)

- o 8 modules
- o 7 hr 29 min

Develop generative AI apps in Azur...

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Milestone 6

Progress:

0%

Microsoft Certified: Azure AI Engineer Associate - Certifications

Days to milestone: 1

- Certification

[Microsoft Certified: Azure AI Engineer Associate - Certifications](#)

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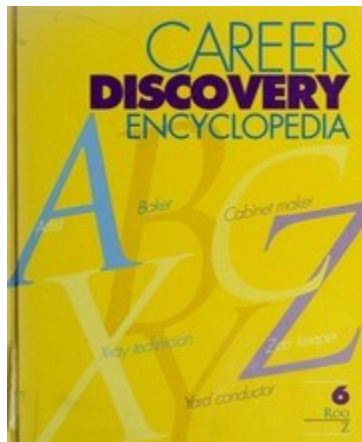
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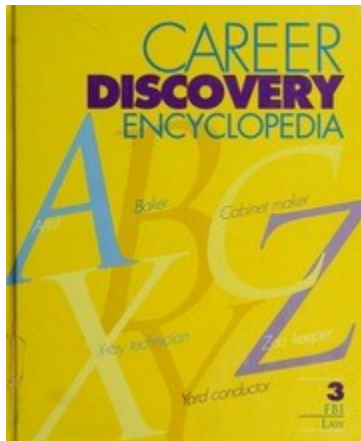
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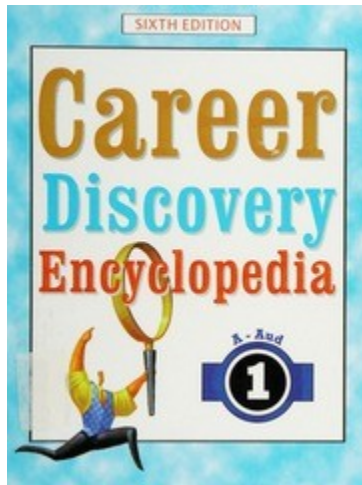
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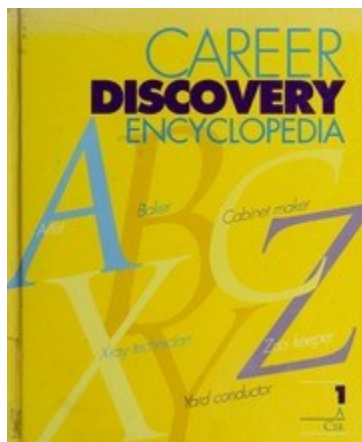
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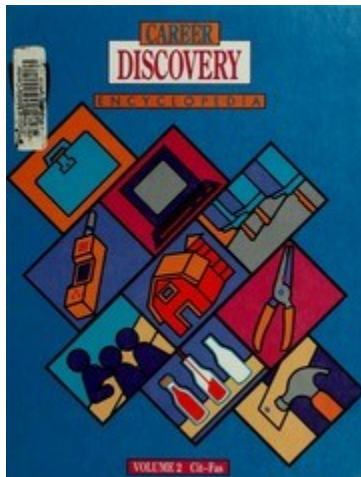
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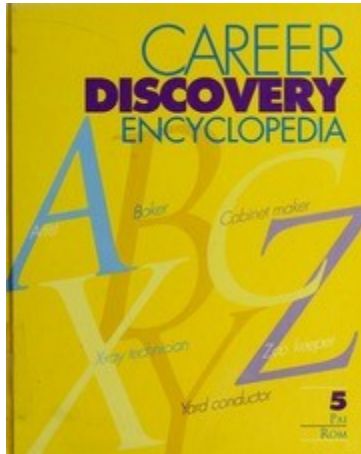
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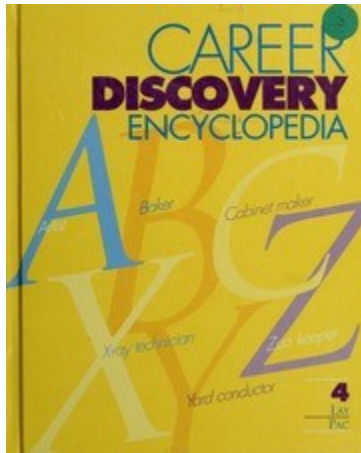
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NSF I-Corps Executive Summary Declined

Inbox



**Ruth
Shuman**

Fri, Aug 15, 6:31 PM (3
days ago)

to tshingombekb@gmail.cm, me, rshuman@salesforce.nsf.gov,
tshingombekb@gmail.com



Dear tshingombe,

Thank you for your interest in the NSF I-Corps program.

This application has been declined. The applicant does not meet the eligibility requirements. To be eligible, the core technology needs to have been developed at an accredited institution of higher education and the proposal must be submitted from an institution of higher education. Companies are not eligible to apply with the exception of current NSF Phase I grantees (if you are a Phase I grantee, please send your Phase I award number). In addition, an application requires a minimum of three team members (Entrepreneurial Lead, Technical Lead, and Industry Mentor), and include a team member that has a related and relevant prior NSF research award, or the team must have participated in a regional I-Corps program and received a Letter of Recommendation to the national program.

Thank you,

Ruth Shuman

Program Director

National Science Foundation (NSF)

2415 Eisenhower Boulevard, Alexandria, VA 22314

rshuman@salesforce.nsf.gov

engineering #5

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Prepare all required actions

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Complete job name: build

2s

Run actions/checkout@v4

Syncing repository: Kananga5/career-discovery-science-mentoring-and-job-experience-tshingombe-

Getting Git version info

Temporarily overriding HOME='/home/runner/work/_temp/1d454498-ff30-47ea-a73f-11437e8d732b' before making global git config changes

Adding repository directory to the temporary git global config as a safe directory

/usr/bin/git config --global --add safe.directory /home/runner/work/career-discovery-science-mentoring-and-job-experience-tshingombe-/career-discovery-science-mentoring-and-job-experience-tshingombe-

Deleting the contents of '/home/runner/work/career-discovery-science-mentoring-and-job-experience-tshingombe-/career-discovery-science-mentoring-and-job-experience-tshingombe-'

Initializing the repository

Disabling automatic garbage collection

Setting up auth

Fetching the repository

Determining the checkout info

/usr/bin/git sparse-checkout disable

/usr/bin/git config --local --unset-all extensions.worktreeConfig

Checking out the ref

/usr/bin/git log -1 --format=%H

67712c5b5cca6e751a8d54dcb9496f858218fec7

0s

Run echo Hello, world!

Hello, world!

0s

Run echo Add other actions to build,

Add other actions to build,

test, and deploy your project.

1s

Post job cleanup.

/usr/bin/git version

git version 2.50.1

Temporarily overriding HOME='/home/runner/work/_temp/7fbf7f0d-af0f-468c-bb8d-974930b56be8' before making global git config changes

Adding repository directory to the temporary git global config as a safe directory

/usr/bin/git config --global --add safe.directory /home/runner/work/career-discovery-science-mentoring-and-job-experience-tshingombe-/career-discovery-science-mentoring-and-job-experience-tshingombe-

/usr/bin/git config --local --name-only --get-regexp core\.sshCommand

/usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'core\.sshCommand' && git config --local --unset-all 'core.sshCommand' || :"

/usr/bin/git config --local --name-only --get-regexp
http\.https\:\V\github\.com\.\.extraheader

http.<https://github.com/.extraheader>

/usr/bin/git config --local --unset-all http.<https://github.com/.extraheader>

/usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'http\.https\:\V\github\.com\.\.extraheader' && git config --local --unset-all 'http.<https://github.com/.extraheader>' || :"

0s

Cleaning up orphan processes[Kananga5](#)

[data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-](#)

•

□ [Code](#)

□

□ [Issues](#)

□

□ [Pull requests](#)

□

□ [Actions](#)

□

□ [Projects](#)

□

- [Wiki](#)
-
- [Security](#)
-
- [Insights](#)
-

- [Settings](#)

[CI](#)

engineering #3

•

□ □ **Jobs**

•

□ □ **Run details**

•

[build](#)

succeeded Aug 18, 2025 in 5s

1s

Current runner version: '2.327.1'

Runner Image Provisioner

Operating System

Runner Image

GITHUB_TOKEN Permissions

Secret source: Actions

Prepare workflow directory

Prepare all required actions

Getting action download info

Download action repository 'actions/checkout@v4'
(SHA:08eba0b27e820071cde6df949e0beb9ba4906955)

Complete job name: build

3s

Run actions/checkout@v4

Syncing repository: Kananga5/data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-

Getting Git version info

Temporarily overriding HOME='/home/runner/work/_temp/aa2fcabf-463e-4bea-8a8b-9b1af7bb7656' before making global git config changes

Adding repository directory to the temporary git global config as a safe directory

```
/usr/bin/git config --global --add safe.directory /home/runner/work/data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-/data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-
```

Deleting the contents of '/home/runner/work/data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-/data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-'

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```

```
/usr/bin/git config --local --unset-all extensions.worktreeConfig
```

Checking out the ref

```
/usr/bin/git log -1 --format=%H
```

```
0e9be0616f84440346b333e424b0316c2773c94c
```

0s

Run echo Hello, world!

Hello, world!

0s

Run echo Add other actions to build,

Add other actions to build,

test, and deploy your project.

0s

Post job cleanup.

```
/usr/bin/git version
```

```
git version 2.50.1
```

Temporarily overriding HOME='/home/runner/work/_temp/8e284bd4-e182-4601-a142-ce00de7d5cd5' before making global git config changes

Adding repository directory to the temporary git global config as a safe directory

```
/usr/bin/git config --global --add safe.directory /home/runner/work/data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-/data-base-system-rawing-logic-algorigram-program-master-doctoral-career-nated-
```

```
/usr/bin/git config --local --name-only --get-regexp core.sshCommand
```

```
/usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'core.sshCommand' && git config --local --unset-all 'core.sshCommand' || :"
```

```
/usr/bin/git config --local --name-only --get-regexp
http\https\:\\github\.com\\\.extraheader
http.https://github.com/.extraheader
/usr/bin/git config --local --unset-all http.https://github.com/.extraheader
/usr/bin/git submodule foreach --recursive sh -c "git config --local --name-
only --get-regexp 'http\https\:\\github\.com\\\.extraheader' && git config --
local --unset-all 'http.https://github.com/.extraheader' || :"
0s
Cleaning up orphan processes
```

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Published Alison meeting

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Part 1 career mentor path training employment build skill cvs

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Part 2 course learner:

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By tshingombe tshitadi fiston

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1. Introduction to E-Learning Platforms

- Platforms like Alison offer free online courses and certifications to empower learners globally.
- They provide over 5,500 courses across disciplines such as IT, healthcare, business, engineering, and personal development.

2. Personalized Career Ready Plans

- Tools like "Career Ready Plan" enable users to explore tailored educational paths for upskilling in current roles or transitioning to new careers.

- Free personality assessments help learners understand their strengths and weaknesses for better career alignment.

3. Learning Modules and Certification Programs

- Categories of courses include:
 - IT (1,217 courses)
 - Business (1,679 courses)
 - Engineering & Construction (795 courses)
 - Teaching & Academics (1,560 courses)
 - Personal Development (1,277 courses)
- Courses are offered in various languages, enhancing accessibility for global learners.

4. Building Careers through Practical Tools

- Users can build professional resumes using easy-to-use templates.

194 | Page • Job-focused training ensures readiness for real-world challenges, like interviews and workplace expectations.

5. Learning Partnerships

- The platform collaborates with top institutions such as Stanford, MIT, and Microsoft to offer quality content from leading experts.
- Special features like "Alison for Business" provide tailored solutions for organizational learning and development.

6. Mobile Accessibility

- The Alison App allows learning on the go, even offline, with thousands of courses available anytime, anywhere.

7. Popular Trends and Courses

- Trending topics include business analytics, healthcare advancements, graphic design, and leadership management.
- Course recommendations and diploma options are aligned with current market demands.

8. Graduate Outcomes and Networking

- Over 45 million learners and 10 million graduates demonstrate the platform's success in helping users achieve educational and career goals.
- Users can explore success stories and graduate outcomes for inspiration. Your Alison dashboard looks active and full of opportunities to maximize your learning and

career development journey. Here's a clear summary and strategy for leveraging your platform effectively:

Learning Dashboard Highlights

• Courses in Progress:

1. Electrical Engineering - Electrical Transformer Components (86% Complete). *Tip:*

Prioritize completing this to claim your certificate and enhance your qualifications.

• Other Recommended Courses:

- o Diploma in Electrical Studies.

- o Introduction to the Electrical Trade.

- o Introduction to Electrical Wiring Systems. *Suggestion:* These courses align well

with your interest in electrical engineering. Completing them could solidify your expertise further.

• Statistics & Medals:

- o Learning Time: 38 minutes logged so far.

195 | P a g e Medals Earned: 2 Bronze and 1 Silver. *Goal:* Learn

consistently for 3 days in a

week to unlock the Gold medal while increasing your total course hours.

Goals and Action Plan

1. **Complete Current Courses:** Focus on wrapping up your ongoing courses to maximize

your dashboard achievements and claim certificates.

2. **Develop a Career Plan:** Utilize tools like "Career Ready Plan" and "Create Résumé/CV"

to tailor your educational achievements for future job applications.

3. **Upskill Strategically:**

- o Consider enrolling in advanced courses or diplomas related to energy systems,

electrical design, and project management.

- o Keep an eye on trending courses in South Africa for skills in demand.

4. **Leverage the App:** Download the Alison App to continue learning offline, ensuring

flexibility even when internet access is limited.

5. **Stay Consistent:** Set study reminders to maintain regular progress and aim to surpass the

average learning time for better performance tracking.

Background Experimental Overview: Learn & Build Your Career

1. Claim Your Certificates

- Completing courses unlocks certificates that validate your skills and learning achievements. These are great additions to your professional profile and CV.

2. Career Ready Plan

- A guided, step-by-step career plan tailored to your goals.
- Perfect for learners unsure of where to start, this tool helps align your education and professional aspirations.

3. Résumé Builder

- Create a free, polished résumé to showcase your skills effectively to potential employers.
- It's a convenient way to ensure your qualifications stand out.

4. Assessments for Career and Personal Growth

- **Workplace Personality Assessment:** Discover your strengths and weaknesses and how they align with preferred roles.
- **Mental Wellbeing Check-Up:** Measure your emotional and physical state to support personal and professional development.

5. Self-Improvement and Career Courses

- Explore trending career paths and courses tailored to in-demand skills.

196 | Page • Top self-improvement courses help you grow holistically.

6. Unique Features to Accelerate Learning and Success

- **Earnings Tracking:** Monitor your progress and achievements over time.
- **Personal Recommendations:** Curated suggestions based on your interests and completed courses.

Suggested Plan of Action

- **Step 1:** Start with the "Career Ready Plan" to discover your most suitable career path and map a strategy for success.
- **Step 2:** Use the Résumé Builder to create a professional CV highlighting your certifications and skills.
- **Step 3:** Take the Personality Assessment to align your strengths with the right career path.
- **Step 4:** Enroll in targeted courses for in-demand skills, completing certifications to enhance your profile.
- **Step 5:** Schedule regular check-ins for the Mental Wellbeing Check-Up to maintain a

healthy balance between personal growth and career ambitions.

Your Learning Journey on Alison

1. Current Progress Overview

- **Courses in Progress:** Electrical Measuring Instrumentation (Enrolled on 10th March, 0% completed).
- **Achievements in March:**
 - Earned one bronze medal by learning one day in the month.
 - Best learning day: 10th March (18 minutes logged).

2. Suggested Actions for Improvement

- Aim for consistent learning across the week to unlock silver and gold medals.
- Set a personal goal to complete at least one course per month, starting with the current course.
- Take advantage of the study reminder feature to establish a regular learning routine.

3. Tools to Boost Your Career

- **Career Ready Plan:** Discover your optimal career path with a step-by-step guide.
- **Resumé Builder:** Craft a polished and professional CV to showcase your skills.
- **Aptitude and Reasoning Tests:** Assess where you stand with free tests like:
 - Verbal and Numerical Reasoning.
 - Abstract Reasoning.

4. Free Online Course Categories to Explore

197 | Page • IT, Engineering & Construction, Teaching & Academics, Personal Development, and Business—all aligned with your areas of interest.

- Focus on certifications or diplomas that match your goals in electrical engineering or other technical fields.

5. Additional Features

- **Mobile App:** Learn offline by downloading the Alison app, making it easier to study on the go.
- **Graduate Outcomes:** Explore testimonials and success stories to stay motivated.

6. Steps to Advance Next Month

- Complete a learning day for at least three days weekly.

- Prioritize completion of Electrical Measuring Instrumentation and claim your certificate.
- Enroll in complementary courses like "Diploma in Electrical Studies" to broaden your expertise.

Learning and Development Overview

1. Courses and Certifications

- Access over 5,500 free courses spanning IT, health, engineering, and personal development.
- Certificates and diplomas validate your skills and enhance professional profiles.

2. Career Tools

- **Aptitude Test:** A free, expert-validated tool assessing verbal, numerical, and abstract reasoning.
- **Resumé Builder:** Create a polished CV to showcase your skills for job applications.
- **Personality Assessments:** Explore workplace fit and career alignment based on your unique traits.

3. Accessibility and Convenience

- **Offline Learning:** Download the Alison App to continue courses without internet access.
- **Language Options:** Courses available in English, Spanish, French, Italian, and Brazilian Portuguese, making learning globally accessible.

4. Insights and Recommendations

- Personalized course recommendations based on aptitude test results.
- Progress tracking with daily study reminders and medals to incentivize consistency.

5. Learning Statistics and Goals

- **198 | Page** • Set monthly targets to improve learning hours and course completions.
- Earn medals by maintaining regular study habits (Bronze for 1 day, Silver for 2 days, Gold for 3 days of learning in a week).

6. Specialized Assessments

- **Mental Wellbeing Check-Up:** Gauge emotional and physical health.
- **Career Path Guidance:** Use tools like "Career Ready Plan" for tailored professional strategies.

7. Business and Advanced Features

- **Corporate Learning Solutions:** Tailor educational programs to organizational needs.
- **Affiliate Program:** Create or recommend courses for earning opportunities.

Recommended Action Plan for Tshingombe

1. **Focus on Current Courses:** Complete "Electrical Measuring Instrumentation" and explore additional topics in engineering and construction.
2. **Take the Aptitude Test:** Use the results to identify strengths and align your career path strategically.
3. **Build Your Profile:** Update your Alison profile to reflect achievements and certifications.
4. **Leverage Offline Learning:** Utilize the Alison App to study anywhere, anytime.
5. **Explore Advanced Opportunities:** Enroll in diplomas or certifications aligned with your interests to deepen expertise.

Understanding Your Score

- **Current Performance:** Beginner level in verbal reasoning, with strengths in vocabulary and grammar (3/16) and opportunities for improvement in reading comprehension and literacy.
- **Percentile Rank:** You scored better than 6% of global test-takers. This baseline is a strong starting point for growth!

Actionable Steps to Improve Verbal Reasoning Skills

1. **Targeted Learning with Alison's Courses:** Alison offers free courses specifically designed to strengthen verbal reasoning and communication. I recommend starting with:
 - *Essential Grammar Skills*
 - *Reading and Writing English for Beginners*
 - *English Vocabulary and Pronunciation*
2. **Daily Practice:**
 - Spend 10-15 minutes daily reading short articles, newspapers, or blogs. Focus on understanding context, identifying main ideas, and expanding your vocabulary.

- o Use free apps like Merriam-Webster or Duolingo to reinforce word usage and grammar.

3. **Practical Exercises:**

- o Practice verbal reasoning sample questions (e.g., reading passages and answering comprehension questions).
- o Start journaling or summarizing stories in your own words to build literacy and comprehension over time.

4. **Engage in Conversations:**

- o Join language exchange groups online or locally to improve oral communication skills.
- o Practice speaking English in everyday scenarios to build confidence.

5. **Utilize Alison Tools:**

- o Incorporate recommendations from your test report into a structured learning plan.
- o Keep track of your progress on Alison's dashboard.

Goal-Setting for the Next 3 Months

- **Short-Term Goal:** Complete at least two courses focusing on vocabulary, grammar, and comprehension.
- **Mid-Term Goal:** Retake the Aptitude Test and aim to increase your percentile rank by at least 15-20%.
- **Long-Term Goal:** Build enough confidence and skills to apply these improvements in both educational and professional settings.
- Alison Aptitude Test Report
-

tshingombe fiston | Alison ID:37876299

Understanding Your Score

- **Performance Overview:** Beginner level with strengths in numeracy (1/5) and data interpretation (1/5). Opportunities lie in improving problem-solving and deepening your understanding of numerical concepts.
- **Percentile Rank:** Scored better than 14% of global test-takers. This provides a solid foundation to build upon.

Actionable Steps for Improvement

1. **Enroll in Relevant Courses:** Alison offers tailored courses to improve numerical

reasoning. Recommended options include:

- o *Introduction to Numerical Analysis*
- o *Basic Problem-Solving with Numbers*
- o *Fundamentals of Data Interpretation*

2. **Daily Practice:**

o Set aside 10–15 minutes daily to solve numerical puzzles, basic arithmetic problems, and logic-based questions. o Websites like Mathway or Khan Academy can provide interactive exercises and tutorials.

3. **Focus Areas:**

o **Problem Solving:** Work on word problems requiring logical solutions or multi-step calculations.

o **Data Interpretation:** Practice analyzing charts, graphs, and tables to draw conclusions.

o **Numeracy Basics:** Revisit foundational concepts like percentages, ratios, and basic algebra.

4. **Track Progress:**

o Retake the test monthly and aim for incremental improvements in each domain.

o Use Alison's development graph to monitor score trends and identify progress areas.

5. **Practical Applications:**

o Apply numerical reasoning in real-life scenarios like budgeting, managing expenses, or interpreting reports.

o Explore tools like Excel for data analysis to practice interpretation skills.

Next Steps

• **Short-Term Goal:** Complete one course in numerical reasoning within the next month.

• **Mid-Term Goal:** Improve problem-solving and data interpretation scores by at least 2/5 during the next test attempt.

• **Long-Term Goal:**

Your Abstract Reasoning results showcase impressive potential, Tshingombe! Scoring at an

Intermediate level with strengths in identifying patterns (5/8) and lateral thinking (3/8) is a solid foundation to build upon. Let's map out how you can take these skills to the next level:

Understanding Your Performance

- **Strengths:**

- Identifying patterns and recognizing trends.
- Lateral thinking, which showcases your ability to think creatively and solve problems innovatively.

- **Opportunities for Growth:**

- Strengthening critical thinking (1/8) to enhance problem-solving in complex scenarios.
- Further improving lateral thinking for more refined decision-making.

Next Steps to Improve Abstract Reasoning

1. **Focus on Courses for Improvement:** Alison provides excellent options tailored to enhancing abstract reasoning:

- *Critical Thinking and Problem-Solving Skills.*
- *Introduction to Logical Reasoning and Trends Analysis.*

201 | Page ◦ *Innovation and Creativity in Problem-Solving.*

2. **Daily Mental Exercises:**

- Dedicate 15 minutes each day to solve puzzles or brain teasers focused on logical reasoning and pattern recognition (e.g., Sudoku or visual sequence puzzles).
- Use platforms like

Overview of Online Certificates

1. **What is an Online Certificate Program?**

- A short-term, focused, postsecondary training that dives deep into a specific subject or skill set.
- Historically tied to skilled trades (like carpentry or plumbing), online certificates now cater to professions such as IT, accounting, education, healthcare, and technology.
- Alison's programs are self-paced, free to study, and typically completed in just 2–3 hours, providing flexible learning opportunities.

2. **Why Pursue an Online Certificate?**

- **Professional Development:**

- Meet employer requirements for job roles.
- Improve skills to earn a promotion or career transition.
- Build marketable expertise to start a business.

- o **Personal Growth:**

- Enhance communication, negotiation, or well-being skills.
- Satisfy intellectual curiosity or gain deeper knowledge in a field of interest.

3. **Advantages of Online Certificates:**

- o **Accessibility:** Learn anytime, anywhere, at your own pace.
- o **Affordability:** Free to study, with optional certificates available for purchase as proof of achievement.
- o **Relevance:** Courses align with in-demand skills and emerging industries.

High-Demand Certificates and Popular Topics

- **Project Management**
- **IT and Computer Skills**
- **Nutrition and Fitness**
- **Business and Leadership Skills**
- **Teaching and Education**

Why Choose Alison?

- Collaborations with elite institutions (Stanford, Yale, MIT, Cambridge, etc.).
- Over 4,000 free courses designed by world-class educators and experts.
- Flexible, self-paced structure tailored to meet individual needs and schedules.

Action Plan for Tshingombe

202 | Page • Step 1: Enroll in a certificate program tailored to your career goals or personal interests.

For example:

- o *Project Management:* To enhance leadership in the energy or education sectors.
- o *IT or Engineering Topics:* Aligned with your expertise in electrical systems.

• **Step 2:** Dedicate 2–3 hours per week to complete a certificate to demonstrate your commitment to continuous learning.

• **Step 3:** Use the "Career Ready Plan" to align your newly acquired skills with job opportunities.

• **Step 4:** Add certifications to your resumé using Alison's Resumé Builder to showcase your qualifications to potential employers.

our exploration of online certificates with Alison offers exciting prospects for both personal and professional growth! Here's a comprehensive breakdown of the key takeaways and opportunities:

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Your Workplace Personality Assessment highlights valuable insights into your strengths and

areas for improvement, Tshingombe! Here's a structured overview to help you use this

information effectively:

Key Highlights from Your Assessment

Top Strengths (Scores: 10/10):

1. Assertiveness (People Skills):

- You excel in leadership roles and confidently take charge in teams.

- Recommended Course: *Diploma in Business Communication Skills* (Beginner

Level, 10-15 hours).

2. Self-Control (Motivations):

- You maintain composure under pressure and make sound decisions.

- Recommended Course: *The Elements of Entrepreneurial Success* (Advanced

Level, 4-5 hours).

3. Entrepreneurial Drive (Motivations):

- Strong initiative to create impact and collaborate effectively.

- Recommended Course: *Leadership Skills in Business* (Beginner Level, 2-3 hours).

4. Positivity (People Skills):

- A proactive mindset that inspires others.

- o Recommended Course: *Public Speaking* (Beginner Level, 2-3 hours).

Skills to Improve

1. Being Persuasive (Score: 1/10):

- o Improve your ability to influence and persuade others effectively.

204 | Page o Recommended Course: *Diploma in Business Communication Skills*.

2. Stress Management (Score: 1/10):

- o Develop strategies to manage stress and maintain work-life balance.
- o Recommended Course: *Stress Management Skills for Life* (Beginner Level).

3. Work Structure (Score: 1/10):

- o Enhance task organization and prioritization skills.
- o Recommended Course: *Kaizen Approach - Lean Methodology for Continuous Improvement*.

4. Creative Learning Style (Score: 3/10):

- o Boost creativity in how you absorb and apply knowledge.
- o Recommended Course: *Innovative Thinking Techniques* (Beginner Level).

Recommended Career Paths

- Leadership roles where assertiveness and entrepreneurial drive are vital.
- Innovation-driven careers that require positivity and self-control.
- Education-focused fields where communication and creativity are key.

Action Plan

- 1. Enroll in Courses:** Start with topics related to your strengths (e.g., entrepreneurial success and communication) and gradually address areas for improvement.
- 2. Daily Practice:** Incorporate small exercises like mindfulness for stress management or brainstorming sessions for creative thinking.
- 3. Apply Skills:** Use work scenarios to implement what you've learned, such as applying lean methodologies to optimize task structures.
- 4. Reassess Progress:** Retake the personality assessment monthly to monitor improvements.

[Alison's Top Free Online Courses For "engineering electrical course diploma"](#)

Discover the best resources and courses on engineering electrical course diploma - handpicked by experts

Did you mean: [engineering electrical course diploma?](#)

5,351 courses

205 | Page Diploma

Beginner Level
engineering
0% complete

career Opportunities

1. **Junior-Level Roles:** Maintenance technician, soldering specialist, or assistant in electrical installations.

. **Senior-Level Roles:** Electrical engineer, system designer, or project manager overseeing large-scale installations and repairs.

3. **Advanced Careers:** Research-focused roles in electrotechnical engineering, energy

systems, or material innovation[Reminder] Your upcoming webinar

Inbox



Alison Webinars
<webinars@alison.com>

Tue, May 20, 7:00 PM (3
days ago)

to
me

SEO Training for Publishing on Alison

Hosted by Alison Webinars, Mustafa Ali Khan

Wednesday, May 21 2025

5:00 PM (GMT +1:00) Dublin, Edinburgh, Lisbon

This is a friendly reminder of the upcoming webinar you registered for!

The best thing you can do now is to bookmark the webinar link, and to set a reminder on your calendar so you do not miss the webinar.

- **Webinar room:**

<https://event.webinarjam.com/t/click/1n61wt6mtl48hqnrar988tzz38h96tr>

- **Room password:** N/A

See you at the webinar!

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[Continue Learning](#)



Benefits of an Alison Certificate

-

Learn for Free

Enrol in a course, finish learning, and pick up new skills - all for free.

-

Study at Your Own Pace

Study whenever you want, from wherever you want. If you need a break, continue learning from where you left off.

-

CPD Accredited Certificates

Claim Certificates/Diplomas, add them to your CV, and show off your new skills to the world.

Explore Related Subjects

Frequently Asked Questions

How are Alison courses structured?

All Alison courses follow the basic structure of Course - Module - Topic - Assessment. Typically, Certificate courses have one assessment at the end of the course and Diploma courses have multiple assessments throughout. Assessments are designed to test your understanding of the content. They may include single or multiple-choice questions. You need to complete all modules and topics, and achieve at least 80% in your assessment in order to pass. The good news is that you can retake the assessment as many times as you like.

When will my lesson start?

Alison courses are designed to be self-paced and self-taught. You can begin a course when you're ready and study whenever you have the chance. The duration of your study is entirely your decision.

What is the course duration?

You can complete our skills-based **Certificate courses** in under 3 hours. They are designed to focus your learning on specific topics in your field or industry.

You can graduate from our **Diploma Courses** in around 6-15 hours. These courses cover a range of topics and are great if you wish to broaden your knowledge on a particular subject area.

What's the difference between a Certificate and a Diploma course?

Certificate Courses

- Duration: 2-3 hours
- Focus: Specific topics within a subject area, like languages, media studies, health, business, or computer programming.
- Note: Not all Certificates have a Diploma equivalent.

Diploma Courses

- Duration: 8-10 hours
- Focus: Comprehensive understanding of a subject, covering multiple concepts, such as business management, workplace safety, or nursing.
- Note: If a Certificate is part of a Diploma, you'll need to complete both separately.

In short, Certificates offer targeted learning, while Diplomas provide in-depth knowledge.

Are Alison courses accredited?

Yes, Alison courses are accredited by CPD UK. This accreditation ensures that our courses meet professional development standards and quality benchmarks. This means a certificate from a course on Alison can now be used as part of your CPD requirements, but please verify with your organisation's guidelines. For more details on Alison's accreditation, you can find additional information [here](#).

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STEP 4

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- Most Asked Questions
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Published 15 Aug 2025

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² engineering, Atlantic International University Online Library, Honolulu, Hawaii, USA

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	Data Sources & Bibliography					
	Experimental Topics:					
	Data from St. Peace College, Tshingombe, and various online databases.					
	Recommended Reading:					
	Books, articles, and papers on electrical systems, engineering dynamics, and electrodynamics.					
	3.1.2.7.6.19.4. Assignment and Project Guidelines					
	3.1.2.7.6.19.4.1 Assignment Title					
	Engineering Electrical Master					
	Topics such as electrostatics, electrokinematics, electrodynamics, and power systems control.					
	3.1.2.7.6.19.4.2 Assignment Structure					
	Course Index:					
	A comprehensive breakdown of basic concepts, diagrams, and case studies such as load shedding, Eskom, and Schneider Electric.					
	Research and Case Studies:					
	Real-world scenarios will be presented, such as city power systems and industrial control challenges.					
	Justification & Practical Examples:					
	Analysis of the advantages and disadvantages of current systems, highlighting issues like poor distribution and inefficiency in trade systems.					
	3.1.2.7.6.19.5. Topics for Study and Exploration					
	3.1.2.7.6.19.5.1 Introduction & Purpose					
	Key Definitions:					
	Introduce critical concepts in electrical engineering, focusing on how system design and stability play a pivotal role in modern industry.					

5.2 Description of Topics
A range of subtopics such as: Signal detection, wireless systems, telecommunication technologies, neural networks, and biological systems.
Examples: Digital Control Systems, Microprocessors, and Stochastic Processes.
6. Advanced Topics in Electrical Engineering
6.1 Topics Covered:
Digital Telephony
Space Control Systems
Advanced Telecommunications
Wireless Telecommunication Systems
Neural Networks and Signal Processing
Signal Detection and Estimation Theory
Industrial Power Systems and Process Control
6.2 Course Focus Areas:
Understanding the interaction between electromagnetic systems, signal processing, and power systems control.
Exploring topics like fiber optics, biological computation, signal redressing, and medical image reconstruction.
3.1.2.7.6.19.7. Additional Course Components
3.1.2.7.6.19.7.1 Educational Development:
The course aims to advance knowledge in engineering, focusing on technical skills and soft skills like critical thinking and innovation in industrial design.
3.1.2.7.6.19.7.2 Professional Evaluation:
Evaluation of developmental theories and the impact of technological changes in the engineering sector.
3.1.2.7.6.11.1.8.3 Approach:
The research will take a holistic approach to vocational education within the engineering sector, exploring how the system can be restructured for better performance and faster responses to evolving e
Online Education and Career Development:
The approach will assess the role of online education platforms and career centers in engineer education. Special attention will be given to security and privacy concerns related to student data, acade
Rural Justice and Social Media:
The study will also consider social media and rural justice systems, analyzing how mediation, conciliation, and policy development through these platforms can contribute to solving vocational educatic
3.1.2.7.6.12.1.7 Theoretical Framework:
The theoretical framework for this research focuses on practical, philosophical, and regulatory aspects of vocational engineering education, with a particular emphasis on electrical engineering and its inte
Key Aspects of the Theoretical Framework:

1. Philosophies of Education:
The framework will draw on various philosophies of education, emphasizing the practical application of engineering concepts and the development of critical thinking and problem-solving skills in vocational education. It will involve examining cognitive processes involved in learning, including how students process, analyze, and apply information in real-world engineering tasks.
2. Curriculum Implementation:
The study will evaluate how the qualification curriculum is designed and implemented, including aspects like:
The design of career-oriented modules.
Time allocation for theory vs. practical work.
Alignment with national framework standards and assessment guidelines.
3. Irregularities in Education:
The framework will focus on identifying and addressing irregularities in:
Marking schemes and record-keeping.
The design of time tables and the allocation of learning hours.
Assessments and results release issues that undermine the credibility of the system.
4. Regulations and Policy:
Focus on regulatory frameworks guiding vocational education and the role of SETAs (Sector Education and Training Authorities), particularly the EDPSETA (Engineering, Development and Professional Skills Education Training Authority). Examination of the philosophy behind the National Qualifications Framework (NQF) and how it impacts the engineering education system in rural areas.
5. Integration with the National Framework:
Conceptual integration of educational practices with the national framework ensuring that learning outcomes are consistently aligned with industry standards and national policies.
This includes the role of School Governing Bodies (SGBs) and other stakeholders in shaping curricula and assessments.
3.1.2.7.6.13.1.8 Methodological Approach:
The methodology will focus on analyzing the education system's practices in vocational engineering institutions, including system design, assessment practices, and data management. It will include the e
Key Elements of the Methodological Approach:
1. Teaching System and Policies:
Study the teaching and assessment systems used in vocational colleges and engineering academies, focusing on the semester design, curriculum delivery, and outcomes assessment.
2. Systematic Evaluation:
Evaluate how timetables and teaching methods in engineering are designed to ensure students receive both theoretical knowledge and practical experience. The study will look into whether these systems are effective.
3. Trade-Related Manufacturing Systems:
Explore engineering dockets and portfolios that track the progress of students in applied fields such as electrical engineering.
Identify gaps or irregularities in the manufacturing and assessment systems and propose improvements.
4. System Failures:
Analyze areas where systemic failures such as slow marking, delayed results, and inconsistent feedback have led to student dissatisfaction and academic inconsistencies.
Focus on developing new methods to resolve these issues in a timely and efficient manner.
5. Engineering Systems and Registration:
The research will assess how registration processes work for engineering students, particularly the suspension of assessments and how these processes can be streamlined or reformed.
6. Assessment Design and Evaluation:

A comprehensive look at assessment processes—whether mark sheets are accurate, grades are timely, and how feedback is integrated into the development of students' skills.
1.8.2 Research Design:
The research design for this study centers on creating an engineering model that highlights the relationship between academic outcomes, curriculum implementation, and real-world application.
Field-Based Model:
Develop a model that includes both academic and practical assessments, allowing for an integrated approach to evaluating students' engineering competencies.
Create outcome-based assessments that are aligned with national qualification standards and industry needs.
3.1.2.7.6.14.1.8.3 Approach:
The study will adopt a multifaceted approach that integrates traditional learning environments with the advent of online education systems and other technology-based solutions to improve vocational tr
Key Aspects:
1. Industrial Education System:
The research will consider the targeted outcomes of industrial education, including skills development, career orientation, and the integration of educational technology into vocational programs.
2. Online and Social Media Approaches:
Examine the use of online platforms, social media tools, and career development centers as part of the educational system. These platforms can help rural students access better learning resources an
3. Rural Justice and Education:
Investigate the intersection of justice systems, education policies, and social development in rural areas, especially how these elements influence educational outcomes for vocational learners in engineer
3.1.2.5.power Systems and Renewable Energy
Optimization of Microgrid Systems
Investigating AI-driven optimization for hybrid renewable microgrids.
Case study on cost-benefit analysis of microgrids in remote areas.
Smart Grid and Energy Storage Technologies
Enhancing demand response strategies using machine learning.
Optimization of battery energy storage for grid stabilization.
Wireless Power Transmission
Developing high-efficiency resonant inductive coupling systems.
Applications of wireless power transfer in electric vehicles.
3.1.2.5.2. Control Systems and Automation
AI-Based Predictive Maintenance in Industrial Systems
Machine learning for fault detection in power transformers.
Predicting failures in rotating machinery using deep learning.
Advanced Robotics and Control Algorithms
Adaptive control for autonomous robotic arms.

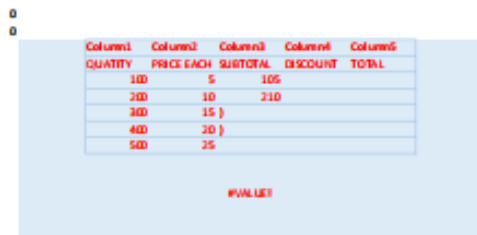
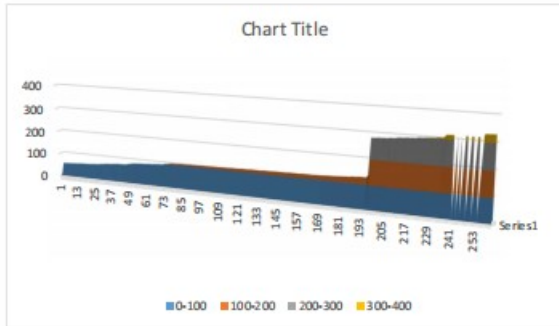
Path optimization algorithms for multi-agent robotic systems.
IoT-Based Smart Home Automation
Implementing AI-driven smart home systems for energy efficiency.
Secure communication protocols for IoT-based automation.
3.1.2.5.3. Embedded Systems and Internet of Things (IoT)
Edge Computing for IoT Devices
Implementing real-time AI inference in low-power embedded systems.
Optimization of edge computing frameworks for industrial IoT.
Wearable Health Monitoring Devices
Developing ECG monitoring using flexible sensors and AI analysis.
Low-power IoT solutions for real-time health monitoring.
3.1.2.5.4. Signal Processing and Telecommunications
5G and Beyond: Enhancing Wireless Communications
AI-driven beamforming techniques for 6G networks.
Security enhancements in millimeter-wave 5G networks.
Speech and Image Processing Using AI
Deep learning-based speech enhancement for hearing aids.
Real-time image recognition for autonomous navigation.
3.1.2.5.5. Electric Vehicles and Sustainable Transportation
Battery Management Systems for Electric Vehicles
AI-enhanced state-of-charge prediction for EV batteries.
Ultracapacitor integration for extended EV range.
Inductive Charging for Electric Vehicles
Wireless power transfer optimization for fast charging.
Roadway-embedded charging systems for continuous power.
3.1.2.5.6. Biomedical Engineering and Assistive Technologies
Neural Interfaces for Brain-Computer Interaction
EEG-based control systems for prosthetic devices.
AI-driven signal processing for seizure detection.
Smart Prosthetics and Exoskeletons
Sensor fusion for adaptive gait control in lower-limb exoskeletons.
AI-driven gesture recognition for upper-limb prosthetics.
Would you like a detailed methodology or research proposal on any of these topics?

.1.2.7.6.26. Electrician Sector Projects and Training	
1. Trade Duration & National Qualification:	Duration: 2 years for electrical trade with different semesters.
Hours & Practical Skills:	Practical visits to transmission and distribution substations for 10 hours.
	Tasks include drawing actual circuit diagrams, assembling solar panels, and understanding the principles of power generation by solar, wind, and other non-conventional methods.
2. Practical Skills & Circuit Installation:	Overhead Domestic Service Line Installation: Erecting overhead service lines and connecting them to a 230V distribution system.
	Practical Installation of Insulators: Used in low-tension (LT) lines for safety.
	Circuit Breakers & Relays: Troubleshooting and repairing faults in circuit breakers, setting up current multipliers for relay operations, and testing tripping characteristics for current and short circuits.
	Transmission and Distribution: Understanding line insulators, overhead poles, and methods of joining conductors.
3. Solar Power Systems & Electrical Installations:	Solar Panel Systems: Preparation of layout plans and identification of different components in solar systems. Erecting overhead lines and ensuring proper electrical connections.
	Wind Power: Understanding the principles and operation of wind energy systems alongside other renewable energy sources.
4. Assessment & Industrial Visits:	Electrical work assessments, including DC voltage control circuits, alarm systems using sensors, and basic electrical principles like resistance measurement.
	Industrial visits to power plants and substations to observe real-world applications of electrical systems.
5. Theory and Practical Application:	Electrical Theory: Includes learning about magnetism, electromagnetism, and using measurement instruments like multimeters.
	Project Work: Involves designing circuits for various electrical applications, such as controlling motor pumps and providing emergency light solutions.
Advanced Power Engineering & Systems Projects	
1. Electric Power Engineering:	SCADA Systems: Learning how power grids are managed with SCADA (Supervisory Control and Data Acquisition) systems.
	Transmission & Protection: Gaining knowledge on the protection systems for transformers and transmission lines.
	Photovoltaic Power & Wind Power Systems: Investigating renewable energy sources and understanding the functioning of photovoltaic and wind power plants.
2. Fundamentals of Power Engineering:	AC, DC, and Three-Phase Technology: Understanding the basics of alternating current (AC), direct current (DC), and three-phase systems.
	Generator Protection: Studying protection mechanisms for generators in the power grid.
3. Experimental Work & Research:	Measuring the Band Gap of Semiconductors: A fundamental experiment in electrical engineering, focusing on material properties.
	Thermoelectric and Electromagnetic Experiments: Investigating thermoelectric effects, induction voltage, and thermodynamic cycles of heat pumps.
	Magnetic Field Measurement: Using apparatus like a Teslameter to measure the magnetic field generated by current flowing through coils.
Objective and Educational Aims	
The primary goal of these projects is to:	
Equip learners with both practical and theoretical knowledge required in the electrical trade, especially focusing on electrical installations, solar power, wind power, and troubleshooting electrical systems.	
Prepare students for the evolving electrical power engineering industry, providing them with the necessary skills to work with complex systems such as power grids, transmission lines, and renewable energy systems.	
Foster critical thinking and hands-on skills through the completion of industrial visits, project work, and practical experiments.	
Key Learning Outcomes	

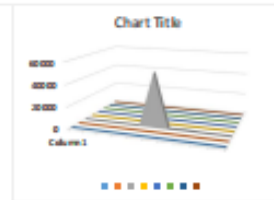
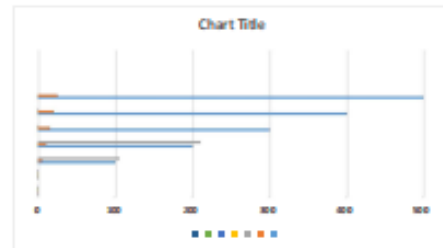
Understanding the fundamentals of electrical power systems and their operation.
Gaining hands-on experience with real-world electrical installations and troubleshooting.
Understanding renewable energy technologies and their application in modern power generation.
Learning to use advanced measurement tools and equipment for electrical systems testing and diagnostics.
3.1.2.7.6.25.2.Project: Topic Overview: Fundamentals of Power Electronics
The course structure for Power Electronics typically covers a comprehensive set of topics related to the fundamental concepts and applications of power electronics systems. Below is an outline of the co
Course Structure
1. Introduction to Power Electronics
Lecture Hours: Introduction to the field of power electronics, its significance, and its various applications in modern electrical systems. Key topics include basic principles and terminology.
2. Semiconductor Devices
Lecture Hours: Overview of different semiconductor devices used in power electronics, such as diodes, transistors (BJTs, MOSFETs, IGBTs), and thyristors.
Key Areas: Working principles, characteristics, and applications of these devices in switching and control.
3. Review of Electrical Concepts
Lecture Hours: A brief review of essential electrical concepts such as voltage, current, resistance, power, and energy. The focus is on how these concepts relate to power electronic devices and circuits
4. Line Frequency Diode Rectifiers
Lecture Hours: The study of basic rectification circuits using diodes, including half-wave and full-wave rectifiers, and the conversion of AC to DC power at line frequency.
Key Areas: Efficiency, output waveforms, and harmonic distortion.
5. Line Frequency Phase Controlled Rectifiers
Lecture Hours: Exploration of phase-controlled rectifiers (such as thyristor-based rectifiers) to control the output DC voltage using phase control techniques.
Key Areas: Applications in power systems and industrial control.
6. DC-DC Switch Mode Converters
Lecture Hours: In-depth study of various types of DC-DC converters such as buck, boost, and buck-boost converters.
Key Areas: Efficiency, switching frequency, and applications in power supply circuits.
7. Pulse-Width Modulation (PWM) with Bipolar and Unipolar Switching
Lecture Hours: The role of PWM in controlling switch-mode power supplies.
Key Areas: Bipolar vs. unipolar switching, voltage regulation, and modulation techniques.
8. Switch Mode DC-AC Inverters
Lecture Hours: Study of inverters that convert DC to AC, including basic topologies like square wave, sine wave, and modified sine wave inverters.
Key Areas: Power factor, efficiency, and applications in renewable energy systems like solar power.
9. Power Supply Applications
Lecture Hours: The design and application of power supplies for various uses such as industrial equipment, consumer electronics, and renewable energy systems.
Key Areas: Voltage regulation, filtering, and noise suppression techniques.
10. Motor Drive Applications
Lecture Hours: Power electronic circuits used in controlling electric motors, including DC motors, induction motors, and stepper motors.
Key Areas: Speed control, torque control, and motor drive techniques.
11. Computer Lab

Lab Hours: Hands-on sessions where students simulate, design, and test power electronics circuits using software tools such as MATLAB/Simulink or PSICE.
Key Areas: Simulation of converters, inverters, and other power electronic devices.
Power Program Lab Structure
The Power Program Lab focuses on practical, hands-on experience with power electronics systems, including a variety of experiments and real-time testing of electrical equipment.
Equipment: The lab is typically equipped with power poles, power supply units, voltmeters, oscilloscopes, and other essential measurement and testing tools.
Lab Activities:
Combination of Total Methods: A blend of theoretical and practical approaches to designing, testing, and troubleshooting power electronic circuits.
Structure and Applications: Focuses on the structure of power electronics systems, including converters, inverters, and motor control applications.
Key Lab Topics:
DC-DC Converters: Designing and simulating buck and boost converters for voltage regulation.
Inverter Testing: Testing and measuring the efficiency of DC-AC inverters.
Power Supply Systems: Building and analyzing regulated power supplies and their performance.
Motor Drive Systems: Designing and testing variable-speed motor control circuits using PWM.
Learning Outcomes
By the end of this course, students should be able to:
Understand and apply semiconductor devices for switching and rectification.
Design and analyze rectifier and converter circuits for different power electronic applications.
Implement PWM techniques for controlling power supplies and motor drives.
Gain practical experience in laboratory-based simulations and real-world power electronics applications.
1. Magnetism and Electromagnetism (Biot-Savart Law)
In the lab, you'll encounter experiments that involve magnetic fields produced by electric currents. One of the most relevant laws for this purpose is the Biot-Savart Law, which gives the magnetic field ge
Biot-Savart Law:
The law is mathematically expressed as:
$\mathbf{B} = \frac{\mu_0}{4\pi} \int \frac{d\mathbf{l} \times \mathbf{r}}{r^3}$
Where:
$\mathbf{B}$ is the magnetic field at a point,
μ_0 is the permeability of free space,
I is the current,
$d\mathbf{l}$ is the infinitesimal length of the current element,
$\mathbf{r}$ is the unit vector pointing from the current element to the point where the field is being calculated,
r is the distance from the current element to the observation point.
This equation helps calculate the magnetic field produced by a current-carrying conductor at any point in space. When you're dealing with coils and solenoids, this law becomes essential in determining h
Integral Derivation:
The integral form of the Biot-Savart Law essentially sums (integrates) the contributions of all infinitesimal current elements ($d\mathbf{l}$) along the conductor to determine the resultant magnetic field
If you have a current flowing in a straight conductor, the magnetic field at a distance r from the conductor can be derived from this law by setting up the appropriate integration. For a straight, infinite c
$B = \frac{\mu_0 I}{2\pi r}$
2. Magnetic Field in Air Coil Experiment

For your experiment involving the magnetic field of a long air coil, you're measuring the magnetic field B generated by current flowing through the coil. The objective is to understand how the magneti
The magnetic field inside a long solenoid (or air coil) can be calculated using Ampère's Law:
$B = \mu_0 n I$
Where:
B is the magnetic field inside the coil,
μ_0 is the permeability of free space,
n is the number of turns per unit length of the coil,
I is the current flowing through the coil.
This relationship shows that the magnetic field strength is directly proportional to both the current I and the number of turns per unit length n . The experiment involves adjusting these parameters an
3. Transformer Protection and Power Transmission
In the power systems lab, you might also look at the protection of transformers and power transmission systems. In this case, experiments focus on measuring fault currents, testing protection relays, an
4. Three-Phase Systems and Transmission Line Faults
In power systems, three-phase transmission lines are crucial. Faults in transmission lines (e.g., line-to-ground faults, line-to-line faults) can cause significant disruptions, and it's important to understand h
5. Photovoltaic and Wind Power Systems
The lab also involves studying renewable power systems like photovoltaic (solar) and wind power. These systems convert solar and wind energy into electrical power, which involves understanding the co
Experimental Procedure for Magnetic Field Measurement:
In your experiment measuring the magnetic field around an air coil, the procedure involves:
1. Set Up: Connect the coils to the high-current power supply and position the Tesla meter and Hall sensor at different locations around the coil.
2. Measurement: Vary the current and record the magnetic field at different points along the coil using the Tesla meter. Ensure you adjust the position of the probe to capture the changes in the magne
3. Repeat the Experiment: For different numbers of turns and coil lengths, repeat the experiment to understand how the magnetic field varies with these parameters.



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	MONTH		120		WORKBOOK		
	PAYMENT		660		WORKBOOK		

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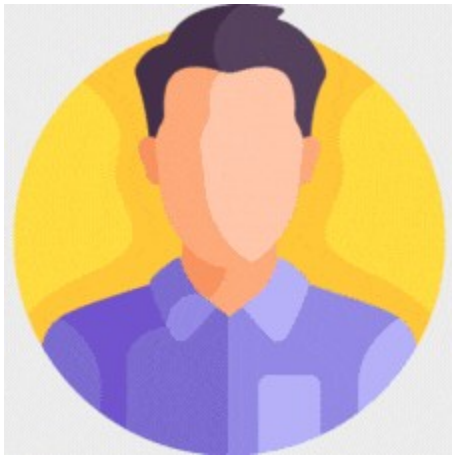
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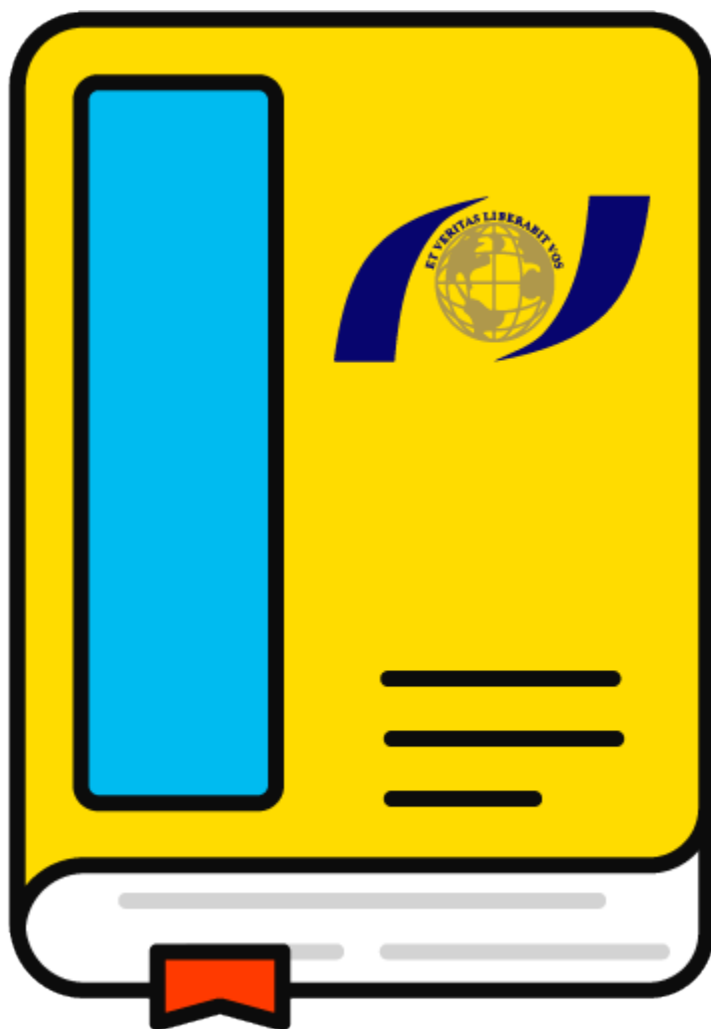
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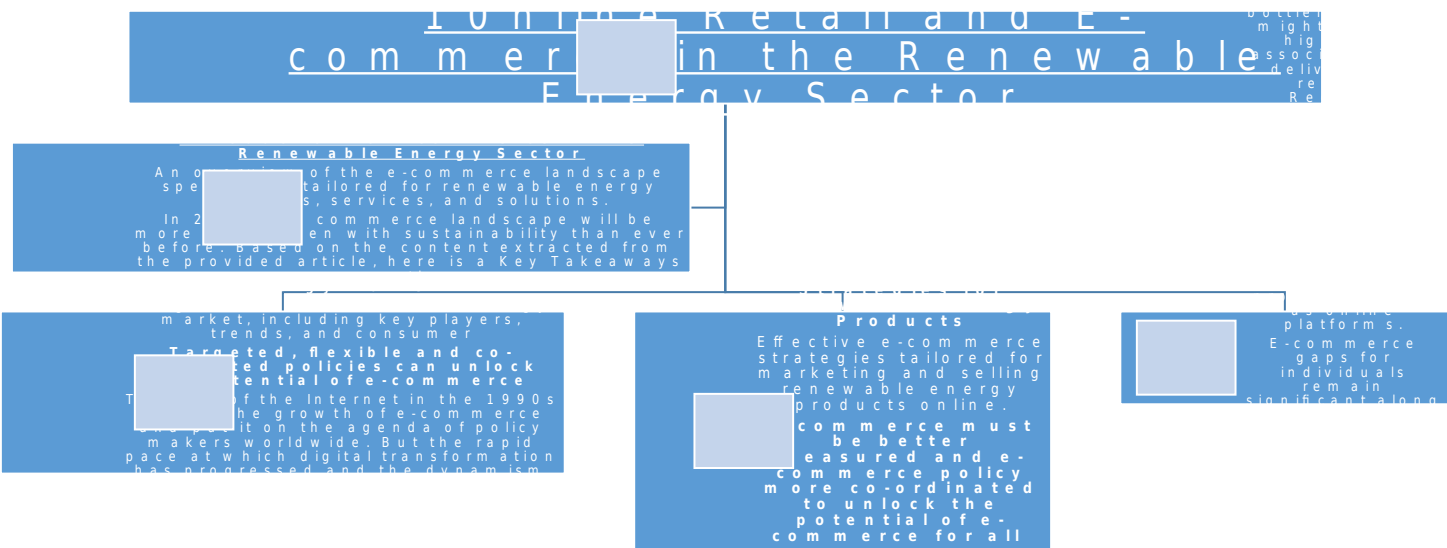
1 .12.15..1 topics :

1 AGI in Human-Machine Collaboration

Exploring how AGI can augment human capabilities and lead to new forms of collaboration.

Future Scenarios of AGI Development

Examining possible future scenarios



.1 Electric power B2B descriptions

2-Notations

The Business-to-Business (B2B) framework within the electric power industry stands as a unique and complex entity, markedly different from the more familiar terrain of consumer-focused markets. This distinction is not merely based on the methodology. This notation serves as the foundation for understanding the data structures, user behaviors, and item attributes as well as the collaborative filtering of approaches. These large common products to users heavy duty equipment in bulk quantities to the formulation and execution of comprehensive contracts that oversee

//: Represents the set of all users in the system. Each user is uniquely identified by an

n : Represents the number of categories for individual product attributes.

m : Represents the number of categories for user behaviors.

$S(u, v)$: Represents the similarity between users u and v . This similarity metric is crucial for collaborative filtering, as it determines how similar two users are in terms of their preferences. The basic formula for collaborative filtering is given by [Equation 1](#):

w_o, w_a, w_b : these are the weight ratios associated with order, following, and browsing data respectively. They determine the significance or influence of each type of implicit feedback in the recommendation process. For examples, we can set $w_o = 1, w_a = 0.5, w_b = 0.5$.

BI_u, NBI_u : these vectors are behavior numbers varying time, representing the bidding and non-bidding behaviors of user u respectively. They capture unique B2B behaviors

.5 Digital Marketing for Renewable Energy E-commerce

Best practices for digital marketing in promoting renewable energy products and services online Public policies can support the creation of innovative e-commerce business models

As digital transformation progresses, new business models will arise in ways that are difficult to predict, but which also challenge traditional policy frameworks. In particular, some

1.6. Sustainable Practices in E-commerce

driven solutions are revolutionizing retail operations by optimizing supply chain management and e-commerce processes. Ant colony optimization (ACO) algorithms play a crucial role in improving vehicle routing, enhancing delivery speed, reducing costs, and minimizing resource

Case Studies in Renewable Energy E-commerce:

3.3 Fusion of behavioral data

3.3.3 Bidding and non-bidding data

The fusion of behavioral data is a pivotal step in the methodology, aiming to create a comprehensive representation of user interactions on the platform. This section delves into the intricacies of how different types of behavioral data are combined to provide insights into the negotiation and decision-making processes of users. These behaviors, while not directly linked to transactions, offer valuable context about user intentions and preferences.

3.3.4 Behavior vectors

$$F_{ui} = w_o O_{ui} + w_a A_{ui} + w_b B_{ui} \quad (2)$$

This formula ensures that each type of interaction contributes proportionally to the final fused representation based on its assigned weight. A cosine similarity measure is used here to characterize user similarity for the fusion of behaviors, as detailed in [Equation 3](#).

$$Sf(u,v) = \cos(\theta) = \frac{F_u \cdot F_v}{||F_u|| ||F_v||} \quad (3)$$

For bidding and non-bidding data, we employ a cosine similarity measure to

User behavior matrix

With the item attribute vectors in place, we can then construct the user-attribute behavior matrix. Firstly, the overall user behavior vector $B_{m \times M}$ is established with each element representing the number of specific behavior (e.g., order number) for each item. The m is the number of behavior types and M is the number of items. Secondly, through matrix operations $B_{m \times M} / A_{M \times n}$, we can obtain the user specific-attribute interaction matrix $R_{m \times n}$. Finally, by summing up each column of the matrix, we can obtain a vector representing the behavioral performance of each user for each

.1 .12.15..2.1 Publishing and Natural Resources Management:

This Masters-level course is designed to explore the intersection of publishing and the management of sustainable natural resources. It focuses on how publishing can be an effective tool in promoting sustainable natural resources management, raising awareness, and influencing policy and public perception. Students will engage in

. Challenges in natural resource management for ecological sustainability

Saikat Mondal, Debnath Palit, in Natural Resources Conservation and Advances for Sustainability, 2022

2.3.1 Resource planning strategy and ownership regime

NRM strategies can be classified by the form and interest

The Role of Publishing in Sustainability:

Explore how different publishing platforms

2.4 Environmental Journalism and Communication

Learn the techniques and ethics of reporting on environmental issues, and how this impacts public awareness and policy-making.

2.5 Digital Publishing and New Media

Analyze the role of digital publishing and social media in shaping discussions and actions regarding sustainability.

2.6 Content Creation for Natural Resource Management

Discover practices for creating engaging content that effectively communicates the importance of sustainable natural resource management.

2.7 Policy Advocacy and Public Engagement: xploration. The platform further provides a weekly summary of SDG topics and progress that allow researchers to quickly scan through a collection of papers and determine their relevance. Cactus Communications is developing this technology further to support researchers, institutions, publishers and policymakers in recognizing SDG-relevant research.

Springer Nature has also released 17 [SDG Content Hubs](#) with the goal of connecting researchers addressing SDG challenges with policymakers and business practitioners. By enhancing the visibility of SDG publishing activities through the content hubs, they aim to connect the key communities needed to drive global progress.

1.12.15..3.1 Masters in Supply Chain Management and Traceability

This course is designed for students pursuing a Master's degree, focusing on the integration of software engineering principles with supply chain management and traceability. The course explores how modern software solutions can enhance supply chain efficiency and transparency, leveraging advanced technologies to ensure the seamless traceability of goods from origin to consumer. Students will gain an in-depth understanding of the design and implementation of traceability systems within complex supply chains.



.2 Introduction to Supply Chain Management

An overview of the basic concepts and components of supply chain management, focusing on the flow of goods, information, and finances.

he way in which companies have conducted, managed, controlled and integrated their business operations have experienced dramatic changes during the last couple of years – this is especially true in the worldwide recording and music industries. Rapid advances in technology and increasing regulatory freedom have changed the rules of operation and competition. Businesses are now competing globally and traditional barriers between industries are breaking down. To cope with these and other changes and achieve superior performance, business leaders are moving towards new business paradigms that allow their companies to work more closely together with their traditional and new business partners (which include all clients and suppliers up and down the supply chain), in order to adapt to the rapidly changing marketplace.

As discussed in the fourth chapter under point 4.2, it is proposed by the mentioned authors that this new collaboration can be successfully achieved by outsourcing all non-core business activities to a third party business partner, which in turn will lead to an

.1 .12.15..4.1 Social Media Marketing for Real Estate, Rental, and Leasing

This course is designed to equip students with the skills and knowledge required to effectively leverage social media platforms for the marketing of real estate, rental, and leasing businesses. Students will learn to create engaging content, manage social media campaigns, and analyze performance metrics specific to the real estate sector.: It sounds like you have a curriculum outline! Are you looking to develop more details for these sections

Sup

.1 Social Media Marketing for Real Estate, Rental, and Leasing

1. Creating Engaging Content

- o Techniques for capturing high-quality photos and videos of properties.
- o Writing compelling property descriptions and posts.
- o Utilizing virtual tours and 3D walkthroughs to enhance listings.

2. Managing Social Media Campaigns

- o Strategies for targeting the right audience on platforms like Facebook, Instagram, and LinkedIn.
- o Best practices for scheduling posts and maintaining consistency.
- o Leveraging paid advertising and promotions to boost visibility.

3. Analyzing Performance Metrics

- o Key performance indicators (KPIs) specific to real estate, such as engagement rate, click-through rate (CTR), and lead generation.
- o Tools and software for tracking and reporting metrics.
- o Case studies and real-world examples of successful social media campaigns in real estate.

4.2 Introduction to Social Media Marketing

1. Overview of Social Media Platforms

- o Introduction to major platforms: Facebook, Instagram, Twitter, LinkedIn, TikTok, etc.

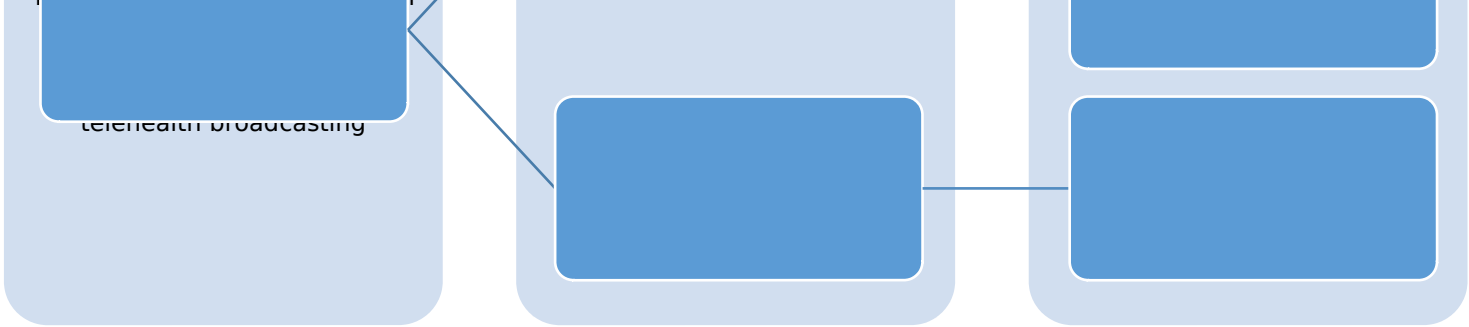
**4.1 .12.15,,5.1 Advanced
Telemedicine and Remote
Healthcare Production**

This course is designed for Master's students focusing on the integration of telemedicine and remote healthcare with media production in radio and television. It aims to equip students with the skills and knowledge necessary to produce informative, engaging, and impactful media content that addresses the growing

unique
strate

form.





.2 Introduction to Telemedicine and Remote Healthcare: Advanced Telemedicine and Remote Healthcare Production

This course is tailored for Master's students who aim to integrate telemedicine and remote healthcare with media production in radio and television. The course equips students with the skills and knowledge to produce impactful media content in the rapidly growing field of telemedicine and remote healthcare delivery.

Key Topics:

1. Media Production Techniques

- 0 Basics of video and audio production.
- 0 Advanced editing techniques.
- 0 Production of live broadcasts and pre-recorded shows.

2. Storytelling for Healthcare

- 0 Crafting compelling stories around telehealth services.

0 Techniques for simplifying complex medical information for a general audience

.1 .12.15.6.1 Technical Writing for Technology

This course is designed to prepare students with the skills and knowledge necessary to effectively communicate complex technical information. Through a blend of theory and practical application, students will learn how to write manuals, guides, and reports in a way that is clear, concise, and accessible to various audiences within the technological fi

Understanding the fundamentals of telemedicine, its history, current trends, and the potential impact on healthcare delivery.

2 Introduction to Technical Writing

An overview of technical writing, its significance in the tech industry, and the roles and responsibilities of a technical writer.: Key Topics:

1. **Fundamentals of Technical Writing**
 - o Understanding the purpose and scope of technical writing.
 - o Characteristics of effective technical documentation.
 - o Writing for different audiences: experts, technicians, and laypersons.
2. **Writing Manuals and Guides**
 - o Structure and components of user manuals and guides.
 - o Techniques for breaking down complex processes into simple steps.
 - o Use of diagrams, flowcharts, and other visual aid

6.3 Understanding Your Audience:

Learn how to identify and write for different audience levels, ensuring your writing is accessible and understood by your intended readers.: **Writing Technical Reports**

- Types of technical reports: feasibility reports, progress reports, and research reports.
- Organizing and structuring technical reports.
- Writing clear and concise executive summaries, conclusions, and recommendations.

Documenting Software and Hardware

- Writing API documentation and software user guides.
- Creating installation guides and troubleshooting manuals for hardware products.
- Techniques for ensuring accuracy and clarity in technical documentation.

Editing and Proofreading

- Best practices for editing and proofreading technical documents.
- Common errors and how to avoid them.
- Tools and software for technical editing and proofreading

6.4 Research and Information Gathering: **Primary Data Sources**

- **Interviews:** Conduct interviews with subject matter experts (SMEs), stakeholders, and users to gather firsthand information.
- **Surveys and Questionnaires:** Distribute surveys and questionnaires to collect data directly from your target

